North Topsail Beach Shoreline Protection Project Final Environmental Impact Statement

APPENDIX H

Coastal Planning & Engineering, Inc.
Nearshore and Offshore Hardbottom Investigation Results

Final EIS: December 2009

SUMMARY OF FIELD OBSERVATIONS

Date: June 2006

Project: North Topsail Beach Shoreline Protection Project

Location: North Topsail Beach, North Carolina

Commission Number: 4600.21

Field Representatives: Erin Hague, Robert Baron, Angela Delaney - Marine

Biologists; and Patrick Bardes - Marine Biologist Technician

CPE marine biologists conducted *in situ* investigations in June, August and October 2005 in the near shore (-18 to -25 feet) and offshore (-36 to -44 feet) waters of North Topsail Beach. Field investigations were performed to confirm the delineations of potential and probable hardbottom resources in the project area to collect benthic community data from representative locations.

From June 21 through 24, 2005, CPE marine biologists confirmed the sidescan sonar results of potential and/or probable hardbottom located 1) in the near shore of Onslow Beach, 2) offshore of New River Inlet near a potential sand source location, 3) in the near shore of the north section of North Topsail Beach, and 4) at select sites in the vicinity of the offshore borrow area.

Field investigations conducted from August 3 through 7, 2005 included diver verification of potential and/or probable hardbottom areas located 1) in the New River Inlet Significant Natural Heritage Area, 2) in the central section, including the establishment of four (4) temporary transects (TS5 to TS8) on confirmed hardbottom, 3) along the northwest hardbottom edge between TS10 through TS13, and SNHA 4) at the three USACE sites resulting in only one site (TS9) as diver verified hardbottom. Refer to Figure 1.

The June and August 2005 investigations confirmed near shore hardbottom resources located approximately 350 meters (1,150 feet) from the February-March 2002 mean high water line; and offshore hardbottom areas located 121.9 to 304.9 meters (400 to 1,000 feet) from the proposed borrow area. The hardbottom communities identified by the sidescan sonar results and confirmed by marine biologists in June and August 2005, were quantified in the project GIS to determine the total identified near shore (2,000 feet or less from shore) and offshore (greater than 2,000 feet from shore) hardbottom resources. The near shore hardbottom community totaled 260,537m² and the offshore hardbottom totaled 1,652,857m². The 'rule of thumb' applied to hardbottom communities without a baseline dataset is to characterize +/-1/10,000th of the area to achieve adequate representation. In using this approach, the optimum sample area is approximately 26m² and 165m² for the near shore and offshore hardbottom communities, respectively.

Researchers conducted near shore and offshore investigations from October 20 through 23, 2005 to ground-truth and characterize diver verified hardbottom resources identified during the June and August 2005 field investigations. Ten (10) temporary transects (TS5

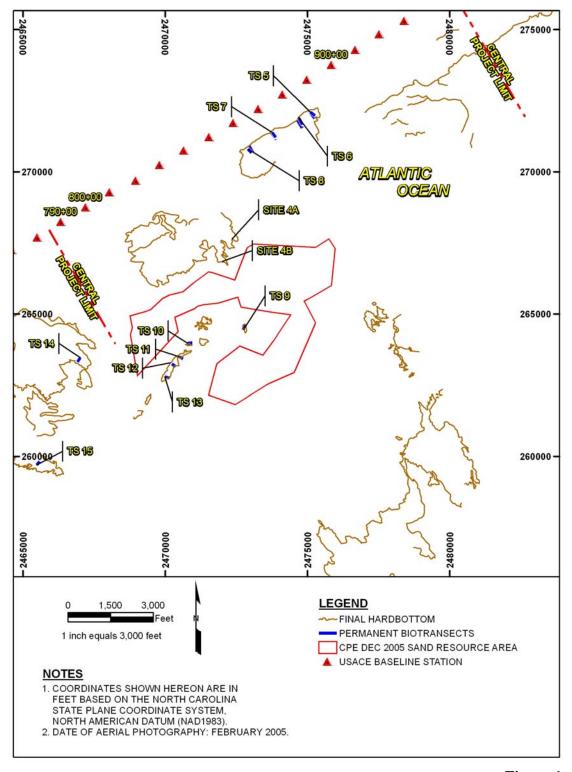


Figure 1

North Topsail Beach Hardbottom Monitoring Stations

to TS15) were established to characterize the near shore (TS5 to TS8) and the offshore (TS9 to TS15) hardbottom resources. See Figure 1.

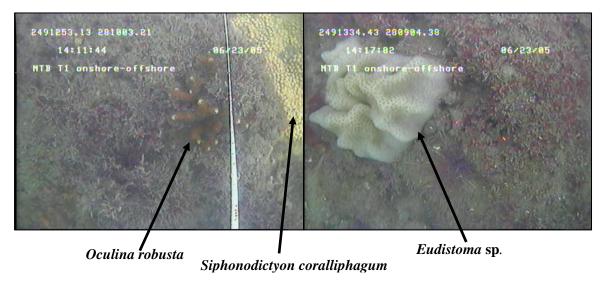
Two methods of habitat characterization and documentation were used during these investigations: 1) the Benthic Ecological Assessment for Marginal Reefs (BEAMR) developed by Coastal Planning & Engineering, Inc., and 2) digital video that may be used to further analyze the hardbottom communities present within each study area. The biological community data collected in October 2005 was input into the project database to be included in a comprehensive pre-construction baseline survey assessment. Refer to the December 2005 Marine Resources Baseline Investigation Plan regarding the BEAMR methodology and video documentation (CPE, 2005).

A summary of findings from the 2005 investigations are provided below.

Near shore Hardbottom Resources

Northern Section

Photos 1 and 2 shown below are representative of the hardbottom features confirmed in the north section (TS1) in June 2005. Heavy sediment and particulate loading observed in the water column during the video collection prevented CPE marine biologists from completing the flora and fauna surveys (visibility ranged from 0 to \leq 30cm). The optical capabilities of a video camera far exceeds human visual optics, therefore the images shown below appear to be in relatively clear water. Further investigations of the north section confirmed hardbottom intermittently exposed between USACE baseline stations 1030+00 to 1070+50.



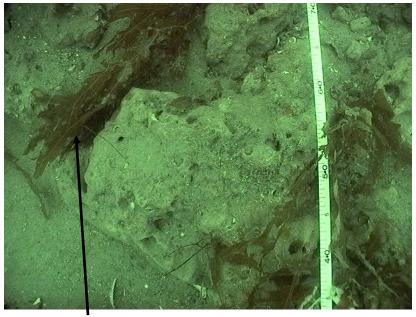
Photos 1 and 2 – Representative biotic coverage at TS1 shown above includes stony coral (*Oculina robusta*), sponge (*Siphonodictyon coralliphagum*) and tunicate (*Eudistoma* sp.).

During the June 2005 investigations at TS1, investigators used a 1m² sample quadrat to collect a representative sample. The measuring tape was laid across the hardbottom feature and was stretched perpendicular to the shoreline for a total of 100 meters, sampling every 10 meters along the transect. Observations of the physical and biological

characteristics of the hardbottom features at TS1 documented the following: minimum and maximum relief recorded 0cm and 60cm, respectively; sediment type is comprised of sand and shell (average sediment depth is 3.2cm); macroalgae cover averaged 4.3% (algal species include *Gelidium*, *Graciliaria*, with *Cryptonemia* and *Dasya* as the dominant types); bare hard substrate averaged 15.4%; stony coral cover (*Oculina robusta*) averaged 1%, ranging in size from ≤1 to 7 cm; additional functional groups included bryozoans, annelids, porifera, hydroids and tunicates. Poor visibility (averaging 1 to 4 inches) prevented CPE marine biologists from conducting further detailed benthic characterizations on the near shore hardbottom communities of the north section during August and October 2005 investigations. As a result of these limiting conditions, the near shore sample area was limited to the central section.

Central Section

In the central section, hardbottom is exposed between stations 850+50 to 880+50. Four (4) temporary monitoring transects (TS5 to TS8) were established in August and October 2005 on the confirmed hardbottom area. In October, investigators used a 0.25 square meter (0.25m²) quadrat to sample every 2.5 meters along the 60m temporary transects, for a total sample size of 24m². Similar to the offshore monitoring efforts, the BEAMR methodology was used to collect physical and biological characteristics of the hardbottom features in the central section. Results of these investigations confirmed an average relief of 7.32 cm, with a maximum relief measuring 35 cm. Sediment depth averaged 2.3 cm with a maximum depth measured to 10 cm. Sediment type was dominated by sand and shell, with occasional mud, averaging 36% cover of the total sample area. See Photo 3 showing the irregular topography and Rhodophyte (*Cryptonemia* sp.) observed at TS7. *Cryptonemia* is typically found in low-light habitats, which is supported by the poor visibility observed during the 2005 in-water investigations (Littler and Littler, 2000).



Cryptonemia sp.

Photo 3 – Exposed hardbottom in near shore zone of central section (TS7).

Shell fragments were commonly observed in the limestone substrate, along with a thin veneer of sediment on the limestone. Bryozoans were occasionally observed representing 1% of the sample quadrat in the central section. As opposed to sessile annelids (feather duster worms) which ranged from 0 to 80% cover (ave. 6%) along TS7. Macroalgae cover at stations TS5 through TS8 was documented on 1% of the sample quadrats, dominated by *Cryptonemia* sp. shown above, with occasional *Gracilaria* sp.

The average non-biotic cover (e.g., turf, cyanobacteria, sediment, and bare hard substrate) occurring along the near shore hardbottom sample area is 87.3%. While the average macrobiotic cover is 10.5%.

The fish species observed during the near shore characterization was limited to the black sea bass (*Centropristis striata*). No other fish species were seen during the in-water investigations due to the limited visibility.

A summary of the hardbottom investigations conducted offshore of New River Inlet in June 2005 are not included in this report since the proposed activities for this area are no longer included in the project.

The June 2005 in-water investigations of the nine (9) sites conducted in the near shore of Onslow Beach confirmed coarse sand, fine silt and wooden debris.

Offshore Hardbottom Resources

In June 2005, CPE marine biologists investigated eight (8) probable hardbottom areas (formerly NTB BA Sites 1 through 8) within 300 meters of the proposed borrow area. All eight sites were confirmed hardbottom of varying relief and benthic community coverage. In August 2005, three (3) additional sites (USACE Sites 1 through 3) were investigated for the presence or absence of hardbottom habitats. Only USACE Site 3 was confirmed as hardbottom by CPE marine biologists; while USACE Sites 1 and 2 were confirmed as shell hash. These sites were documented by visual observations of the benthic communities, video documentation and mapping using DGPS positioning and HYPACK®MAX software. A summary of in-water observations conducted at USACE Sites 1 and 2 are not provided in this report.

Due to their proximity to the borrow area, the rock/sand interface at TS10 through TS13 were mapped in August 2005 to delineate the extent of hardbottom communities near the borrow area. The offshore hardbottom located near TS 11 through TS 13 measured 1 to 4 feet in height.

Hardbottom characterizations of the offshore communities were conducted in October 2005, which included the establishment of seven (7) 50 m temporary transects at TS9 through TS15 (formerly USACE 3, BA 1 and 2, 7 and 8). In June 2005, CPE marine biologists confirmed hardbottom at Sites 4A and 4B. However, in October 2005, the hardbottom at these sites was found covered with greater than 60 cm of mud. Therefore a temporary transect was not established at this location.

Transects were established at the sand/rock interface and extended in a southerly direction, away from the borrow area. The distance from the proposed borrow area to

TS15 is approximately 4,400 feet. Project dredging affects are not anticipated due to the distance from the sand resource area, therefore this site will be reported as the control transect (see Figure 1).

Sample stations were established every 2.5 m along the temporary transects using a 1m² sample quadrat for a total representative sample size of 140m². The BEAMR surveying method was conducted at each of these offshore sites to identify benthic community coverage and diversity, as well as sediment depth and cover.

The average macrobiotic cover per sample quadrat is 5.4% along the offshore transects. Sessile benthos observed along the hardbottom is dominated by macroalgae, octocorals, encrusting red algae, sessile worms and stony corals (presented in decreasing order). The dominant macroalgae observed along the offshore transects is the red algae Cryptonemia. The octocoral Leptogorgia virgulata averages the greatest percent cover along the offshore transects. This octocoral is one of the most common types found in the South Atlantic Bight, ranging from Chesapeake Bay to Georgia, to the western coasts of Florida and Brazil (SERTC, 2006). Titanideum frauenfeldii occurs less frequently on the This octocoral commonly occurs on rock and sand mixed offshore hardbottom. substrates located in current-swept environments (NOAA, 2006). The stony coral Oculina robusta is present along most offshore transects as recruits (<3cm). This shallow water form of *Oculina* has a temperature range of 52 to 93 °F and is abundant off the west coast of Florida (Reef, 2006; Humann, 2002). Results from aquarium observations conducted by the Reef Ball Foundation, Inc. indicated that O. robusta is "very hardy" and has a high silt tolerance (Reef, 2006). Refer to Photo 4.

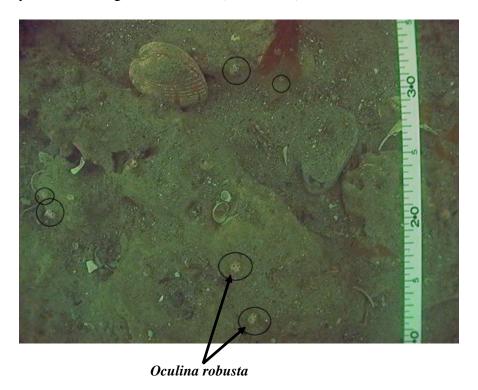


Photo 4 – *Oculina robusta* stony coral recruits observed at TS9 during the October 2005 in-water investigations.

The average non-biotic cover (e.g., turf, cyanobacteria, sediment, and bare hard substrate) occurring along the offshore hardbottom, as observed along the representative monitoring transects, is 94.2%. The maximum height measured within the offshore sample quadrats is 35 cm (average 4 cm). The average sediment cover per sample quadrat is 83.5% with a maximum depth measured at 30 cm (average depth 9 cm). Visual observations of the surface sediment indicated that it is primarily composed of sand and shell fragments.

New River Inlet Outcrop- Significant Natural Heritage Area (SNHA)

In August 2005, CPE marine biologists investigated four (4) probable hardbottom areas identified from the side scan sonar results and located in the New River Inlet Outcrop SNHA. The four areas are identified in the project GIS as SNHA 1, 2, 4 and 4A. All four probable hardbottom areas are located in the western region of the SNHA. Both SNHA 1 and 2 are low relief (≤ 30 cm) hardbottom features with 3 to 4 cm of sediment covering the rock. Tunicates, sponges, encrusting red algae and the stony coral *Oculina robusta* were common at both sites. The *O. robusta* corals ranged in size from 2 to 5 cm at SNHA 2. No attached macroalgae was observed at SNHA 1. At SNHA 2, the chlorophytes *Caulerpa* and *Codium* were present, as well as the phaeophytes *Dictyota*, *Lobophora* and *Sargassum*.

Investigation areas SNHA 4 and 4A are located in proximity to one another near the northwest corner of the New River Inlet Outcrop SNHA. SNHA 4 is a ridge and trough feature that was observed with a thin veneer of sand and silt. The maximum relief measured at this site was 45 cm. CPE marine biologists observed a 2.1 meter stepping ledge with a maximum base depth of 32 feet and a minimum platform depth of 25 feet. In addition to the organisms observed at SNHA 1 and 2; hydroids, red cyanobacteria mats, the rhodophyte *Gracilaria* and the red coralline algae *Amphiroa* were also observed. *O. robusta* colonies observed at SNHA 4A were measured between 2 and 3 cm, with an occasional 5 cm colony.

The following table lists the finfish observed near the offshore hardbottom stations during the August 2005 investigations.

Common Name	Scientific Name
GRUNTS	HAEMULIDAE
White Grunts	Haemulon plumierii
Tomtate	Haemulon aurolineatum
pigfish	Orthopristis chrysoptera
Unidentified juvenile grunts	Haemulon sp.
PORGIES	SPARIDAE
Spottail Pinfish	Diplodus holbrooki
Pinfish	Lagodon rhomboides
Longspine Porgy	Stenotomus caprinus
Sheepshead	Archosargus probatocephalus
Scup	Steotomus chrysops
DRUMS	SCIAENIDAE
Highhat	Pareques acuminatus
GOATFISH	MULLIDAE
Dwarf Goatfish	Upeneus parvus
COMBTOOTH BLENNIES	BLENNIIDAE
Seaweed Blenny	Parablennius marmoreus
MACKERELS	SCOMBRIDAE
Spanish Mackerel	Scomberomorus maculatus
PUFFERFISH	TETRAODONTIDAE
Bandtail Puffer	Sphoeroides spengleri
Sharpenose Puffer	Canthigaster rostrata
SEABASSES AND GROUPERS	SERRANIDAE
Black Sea Bass	Centropristis striata
Pygmy Sea Bass	Seranniculus pumilio
Belted Sandfish	Serranus subligarius
JACKS	CARANGIDAE
Bar Jack	Caranx ruber
Mackerel Scad	Decapterus macarellus
Unidentified Scad	Selar/Decapterus sp.
SPADEFISH AND SILVERSIDES	EPHIPPIDAE
Atlantic Spadefish	Chaetodipterus faber
TOADFISH AND SCORPIONFISH	BATRACHOIDIDAE
Leopard Toadfish	Opsanus pardus
WRASSES	LABRIDAE
Slippery Dick	Halichoeres bivittatus
FLOUNDER	PARALICHTHYIDAE
Summer Flounder	Paralichthyus dentatus
LIZARDFISH	SYNODONTIDAE
Sand Diver	Synodus intermedius
REMORA	ECHENEIDAE
Whitefin Sharksucker	Echeneis neucratoides

References

- Baron, R. and M. Lybolt, 2004. Coastal Planning & Engineering, Inc. Rolls Out the New BEAMR (Benthic Ecological Assessment for Marginal Reefs): A Standardized Marine Resource Benthic Cover Assessment Method. Coastal Planning & Engineering, Inc.
- Coastal Planning & Engineering, Inc. Rev. December 2005. North Topsail Beach Shoreline Protection Project, Marine Resource Baseline Investigation Plan, North Topsail Beach, NC.
- Humann, P., 2002. *Reef Coral Identification*, Jacksonville, F.L.: New World Productions Inc., 278p.
- Littler, D.S. and Littler, M.M., 2000. Caribbean Reef Plants, An Identification Guide to the Reef Plants of the Caribbean, Bahamas, Florida and Gulf of Mexico, Washington, D.C.: Offshore Graphics, Inc., 542p.
- NOAA, 2006. Grey's Reef National Marine Sanctuary: Habitat and Depth of *Titanideum frauenfeldii*. http://graysreef.noaa.gov/
- Reef Ball Foundation, Inc. (Reef), 2006. Robust Ivory Tree Coral (*Oculina Robusta*) Field and aquarium observations, http://www.artificialreefs.org/index.html.
- Southeastern Regional Taxonomic Center (SERTC), 2006. *Leptogorgia virgulata* (sea whip), *L. hebes* (regal sea fan), and their associates. http://www.dnr.sc.gov/marine/sertc/Leptogorgia.pdf

FIELD OBSERVATION REPORT

DATE: August 29-30, 2006

PROJECT: North Topsail Beach Shoreline Protection Project

COMMISSION NUMBER: 4600.55/5

LOCATION: North Topsail Beach, North Carolina

FIELD REPRESENTATIVES: E. Hague (Senior Marine Scientist), M. Lybolt (Senior

Marine Biologist), C. Barrett (Marine Biologist), J. Craft (Marine Biologist), K. Willson (Coastal Geologist), A.

Spencer (Marine Technician)

Introduction

In June 2006, the Southern Section (USACE baseline stations 580+00 to 781+00) was added to the North Topsail Beach Shoreline Protection project. Investigations were therefore needed to determine if hardbottom resources are located in the nearshore (152 to 457 m)of the South Section or near the extended offshore borrow area approximately 767 m from the 2002 mean high water line at USACE baseline stations 850+00 to 890+00.

Sidescan sonar surveys were first conducted in August 2006 by Coastal Planning & Engineering, Inc. (CPE) geologists to determine if potential and probable hardbottom resources exist in the extended project area. Following the survey data reduction, CPE marine biologists and geologists conducted underwater (SCUBA) reconnaissance surveys to confirm the presence or absence of these resources. In addition to confirming hardbottom resources, goals of these investigations included: 1) establish two additional temporary monitoring transects (TS 16 and TS 17) near the offshore borrow area, as requested by the NCDCM; 2) collect baseline turbidity samples in the nearshore and offshore water column; and 3) collect relief measurements monitoring stations TS 11 and TS 12; and 4) determine the feasibility of placing hardbottom monitoring stations in the nearshore of the Southern Section.

Mobilization

Two field boats (Scuba Tech – M/V Tsunami and M/V Seahawk) were mobilized at 0700 hours on August 29th. The CPE crews arrived at the first investigation sites at approximately 0900 hours. Air temperature during the survey was approximately 83°F (28°C). Sea state conditions were 0.6 to 0.9 m at 0900 hours and increased to 1.2 to 1.8 m at 1400 hours. Winds ranged from 10 to 15 mph and a north current of \leq 0.5 knots was observed. The two boats with CPE crew returned to the dock at 1600 hours.

On August 30th, one field boat (*M/V Tusnami*) was mobilized by the CPE crew with a captain from Scuba Tech. The crew left the fuel dock at 0730 hours and arrived at the first site at 0825 hours. Air temperature during the survey was approximately 83°F (28°C). Sea state conditions were 0.6 to 0.9 m seas at 0900 hours and increased to 1.2 to 1.8 m at 1430 hours. Winds ranged from 10 to 25 mph with a slight north current. The CPE crew returned to the dock at 1700 hours.

<u>Methods</u>

The divers descended on a buoy deployed near the center of each potential and/or probable hardbottom area, and proceeded to conduct an exploratory search around the buoy for significant benthic resources. If none were found in the vicinity of the buoy, divers would then swim a compass bearing through the longest axis of the potential habitat. If an isolated resource or point of interest was observed, divers would record the location by pulling the dive flag below the surface of the water several times, signaling the boat crew to record the position using a Trimble AgDGPS Global Positioning System (GPS) with Pro Beacon. The buoy was on the shortest possible tether, such that the buoy was positioned directly over the sampling location. The positioning data were recorded and stored in the HYPACK 6.2a software program, a multifunctional navigation and hydrographic surveying program. Transitions in sediment were also recorded (e.g., mud to sand, shellhash).

Benthic characterization along the temporary transects (confirmed hardbottom habitat) included the BEAMR methodology supported by videographic documentation.

Results

Investigations conducted offshore of USACE baseline station 850+00 (seaward of TS 5 to TS 8) confirmed mud, sand and shellhash. No hardbottom resources were found in this area. Refer to Figure 1.

Temporary transects were established offshore of USACE baseline station 800+00, identified as TS 16 and TS 17. BEAMR data was collected at these sites by a qualified marine biologist to characterize the benthic community. Underwater video was also collected along the transect line. Sample data was recorded every 2.5 m along the 50 m transect. Species observed were similar to those recorded at the offshore transects, with the exception of the octocorals *Titanidium* sp. and *Carijoa* sp.

At TS 11 and TS 12, relief measurements were collected landward side of the exposed hardbottom formation to determine if these features qualified as "high relief" under the North Carolina definition. The North Carolina code NCAC 07H. 0208(b)(12)(A)(iv)) states "Mining activities shall not be conducted on or within 500 meters of significant biological communities, such as high relief hardbottom areas. High relief is defined for this standard as relief greater than or equal to one-half meter per five meters of horizontal distance." Vertical relief was measured for five meters in either direct (northeast and southwest) from the start of the transect. The results determined that the average relief along TS 11 is 0.16 m; while average relief along TS 12 ranges from 0.40 to 0.45 m. Relief measurements collected at the time of these investigations determined that these resources do not qualify as high relief under the State definition. BEAMR data and video was also collected at TS 11 and TS 12.

Underwater investigations conducted in the nearshore of the Southern Section confirmed to areas of hardbottom resources (near USACE baseline station 670+00 and between 725+00 and 750+00). CPE marine biologists attempted to establish temporary transects (TS 18 and TS 19) between 725+00 and 750+00, however poor visibility prevented divers from collecting data. These sites will be included in future investigations. Refer to Figure 2.

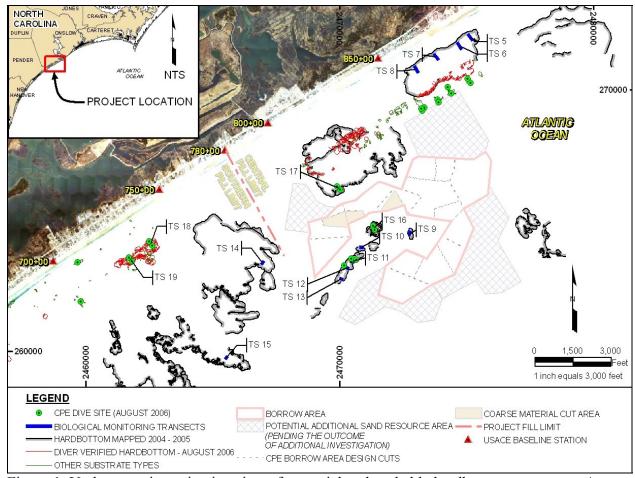


Figure 1. Underwater investigation sites of potential and probable hardbottom resources. August 2006 dive locations shown as green targets.

Water quality data was also collected at four sites in the nearshore and offshore during the August 2006 investigations. Turbidity levels were measured using a LaMotte 2020 turbidimeter. In the nearshore (USACE baseline stations 590+00 and 595+00), turbidity levels were measured at 35.2 and 9.67 Nephelometric Turbidity Units (NTU). Samples were collected at depth, approximately 2 m above the seafloor.

Turbidity samples collected in the offshore, at depth, include TS 12 (4.5 NTU), TS 16 (0.50 and 0.76 NTU) and TS 19 (-17.6, 22.5 and 23.0 NTU). Surface samples were also collected at TS 17 which averaged 0.43 NTU. The results of the turbidity sampling confirmed the poor visibility observed during the underwater investigations.

Additionally, the hardbottom edge digitized from the 2005 and 2006 sidescan sonar surveys at TS 18 and TS 19 indicated a change in exposed hardbottom from 5.25 acres in 2005 to 8.27 acres in 2006. The three acre change in exposed hardbottom confirms the ephemeral nature of this resource.

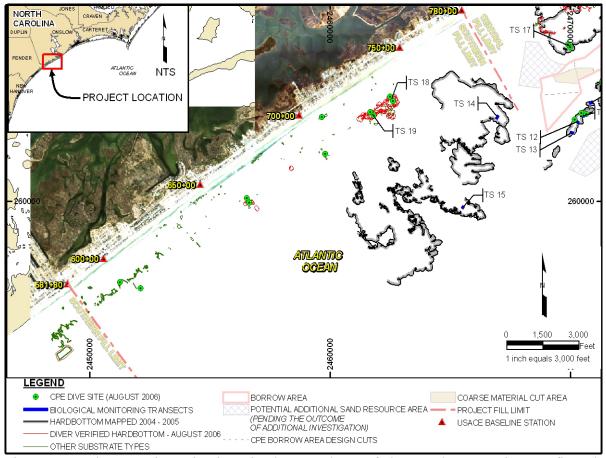


Figure 2. Underwater investigations in the nearshore of the Southern Section confirmed two hardbottom areas (near USACE baseline station 670+00 and between 725+00 and 750+00).

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Hydroid

Octocoral

Stony Coral

Tunicate

Bare Hard Substrate

other—Bryoz

List every coral colony—or max size (cm)

Carlos

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Total Must = 100%

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarq, Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex..., except Pseudopterogorgla=Pspt, Plexaurella=Plia, Pseudoptexaura=Psi Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S in Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other-Includes: Anemone, Annelid-sessile, Barnacle, Bivatve, Bryozoan, Millepora, sp., Seagrass, Zoanthid.

TSIL

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Macroalgae- Fleshy+Calcareous			1/1/1/1/1
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Encrusting Red Algae	3		1/1/1/1/1
Sponge	/		1/1/1/1
Hydroid			11/1/1
Octocoral			
Stony Coral			
Tunicate	3		
Bare Hard Substrate	2		
other	2		
By 10:00	1	Lamore	

Quad Label:	1,5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	9		
Max Sediment Depth (cm)	4	Carloa	2/3
Sessile Benthos	% Cover	0,006	1/1/1
Sediment- (circle all: sand) shell mud)	65		WV
Macroalgae- Fleshy+Calcareous	_		1/1/
Turf-algae+cyanobacteria (circle all: g r b) 0	27		1/1/1/
Encrusting Red Algae	2		1/1/1/1
Sponge			11/1/1
Hydroid	1/		1/1/1/1
Octocoral	1	\mathcal{W}	
Stony Corel		1e,110-V	2
Tunicate		U	
Bare Hard Substrate	7		
other Inemone			
		-	
Total Mu	st = 100%		-

Quad Label: 5		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Carrion	3/3
Max Sediment Depth (cm)	2	Carrion Loplo-V Orrob	23
Sessile Benthos	% Cover	O, rob	1/4//
Sediment- (circle all: sand shell mud)	60	/	1/1/1/
Macroalgae- Fleshy+Calcareous			Will
Turi- algae+cyanobacteria (circle all: g r b)/	31.		1/1/1
Encrusting Red Algae	3	V	11/1
Sponge	0		,
Hydroid	0		
Octocoral	<i>(' ·</i>		
Stony Corel	1		
Tunicate	0		
Bare Hard Substrate	1		
other Bry12091	1		

Quad Label: 7	5	List macroalgae Genus % List every coral colony -and coral condition(s)	(cm) or maxe
Max Relief (cm)	9		
Max Sediment Depth (cm)	5		
Sessile Benthos	% Cover	Grob=lan	113
Sediment- (circle all: sand shall mud)	50	Orobelan Orobelan	6.4
Macroalgae- Fleshy+Calcareous		O. robe 1 con	3
Turf- algae+cyanobacteria (circle all: g (1) b)	40		
Encrusting Red Algae	4		<u> </u>
Sponge	0		
Hydroid	0		
Octocoral	0	·	
Stony Coral	1		
Tunicate	0		4
Bare Hard Substrate	1		
other-Bryoz	2		
1. well	1		

110

Total Must = 100%

Standard Abbreviations: and abbreviation formats Macroalgae: Pool to Genus = Genu or Genus; Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasva, Dasvcladus, Grac, Hali, Hypn, Sarg...

Octocoral; Genus of each colony = Genu; Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexeurella=Plla, Pseudoptexaura=Pspt
Stony Coral; Genus species of each colony = G spe; A cer, A age, C nat, M ann, M cay, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition; W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other-includes; Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepore, sp., Seagrass, Zoanthid.

Total Must = 100%

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T 5/6

Cuad Label: Sample Name or # List macrosigae Genus % % cover or max size condition(s) Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment- (circle eli: g r b) Encrusting Red Algae Sponge Hydroid Octocoral Stony Coral Tunicate Bare Hard Substrate Other Total Must = 100% List macrosigae Genus % % cover or max size or max size (cm) Sample Name or # List macrosigae Genus % % cover or max size (cm) Max Relief (cm) Max Relief (cm) Max Relief (cm) Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment- (circle eli: g r b) Encrusting Red Algae Sponge Hydroid Octocoral Stony Coral Tunicate Bare Hard Substrate Other Total Must = 100% List macrosigae Genus % % cover Total Must = 100% List macrosigae Genus % % cover Sample Name or # List macrosigae Genus % % cover Amax Relief (cm) Max Relief (cm) Ma	Date 1.9	Av C	6	Data Col	lec	tor ML_		Data Entry	. Commen
Max Sediment Depth (cm) Sestable Benthon Sodiment Circle all said shall must) Turf- alges-symmobactoria (circle all s. or 1 b.) Encrusting Red Algee Sponge Hydroid Octocoral Story Coral Turficate Bare Hard Substrate Other Total Must = 100% Cut all severy coral cockey and coral condition(b) Max Redient (cm) Max Red	Quad Label: 1	0	ist macroalgae Genus % ist every coral colony	or max size		Quad Label: 22	.5	List every coral colony	or max size
Sessile Benthos Sediment Depth (cm) Sessile Benthos Sediment Corcle site and shell must great the session of the sess	Max Relief (cm)	0				Max Relief (cm)	3		· · · · ·
Sediment (circle all significant shell mus) Sediment (circle all significant shell mus) Fleshy-Colareous Turn-algae-cynochacteria (circle all significant shell mus) Florousting Red Algae Sponge Hydroid Octoooral Story Corel Turnicate Bare Hard Substrate Other Total Must = 100% Cuad Label: Story Corel Turnicate Bare Hard Substrate Other Total Must = 100% Cuad Label: Story Corel Turnicate Bare Hard Substrate Other Total Must = 100% Cuad Label: Story Corel Turnicate Bare Hard Substrate Other Total Must = 100% Cuad Label: Story Corel Turnicate Bare Hard Substrate Other Total Must = 100% Cuad Label: Story Corel Turnicate Bare Hard Substrate Other Max Relief (cm) Max Sediment Depth (cm) Sessalls Barthon Sediment Circle all: and shell mus) Max Relief (cm) Max Relief (cm) Max Sediment Depth (cm) Sessalls Barthon Sediment Circle all: and shell mus) Max Relief (cm) Max	Max Sediment Depth (cm)	7				Max Sediment Depth (cm)	10		
Cordo al (safer ahell mud) Macroalgase Fleshy-Calceracus Fleshy-Calceracus Fleshy-Calceracus Fleshy-Calceracus Fleshy-Calceracus Fleshy-Calceracus Fleshy-Calceracus Freshy-Calceracus Furf-algase-synanosacidria (circla alt: g r (° b) Furf-algase-s	Sessile Benthos	% Cover				Sessile Benthos	% Cover		
Turf- algae-cyanobacteria (circle alt. g r b) Encrusting Red Algae Sponge Hydroid Octocoral Storry Coral Turlcate Bare Hard Substrate Other Total Must = 100% Total Must	Sediment- (circle all; sand shell mud)	99	Lepto-V	28		(circle alt: sand shell mud)	89	Lepto-V 43/	28/13
Turf- alges-cyanobacteria (circle alt. g r b) Encrusting Red Algae Sponge Hydroid Octocoral Storry Coral Truncate Bare Hard Substrate Others Total Must = 100% Total Must	Macroalgae		0					Lepto-V	3937
Encrusing Red Algae Sponge	Turf- algae+cyanobacteria	0				Turr- algae+cyanobacteria	2	· · · · · · · · · · · · · · · · · · ·	
Hydroid Octocoral Stony Coral Tunicate Bare Hard Substrate Other Total Must = 100% T	Encrusting Red Algae	2	****		ي ا	Encrusting Red Algae	~		
Hydroid Octocoral Stony Corel Tunicate Bare Hard Substrate Other Total Must = 100% T	Sponge	0			4	Sponge	0	Orob	<u> </u>
Stony Coral Tunicate Bare Hard Substrate Other Total Must = 100% Cuad Label: Sample Name or # Max Relief (cm) Sessile Benthos Sediment- (circle alt: and shell mud) Macroalgae Fleshyt-Calcareous Fleshyt-Calcare	Hydroid	0			J v	Hydroid	G C		··· ·,
Tunicate Bare Hard Substrate Other Total Must = 100% Cuad Label: Sample Name or # List macroelgae Genus % % cover Usit every coral colony or max size and coral condition(s) (cm) Max Relief (cm) Max Sediment Depth (cm) Sessilla Benthos % Cover Centre of sessing Red Algae Tunicate Sponge Hydroid Octocoral Stony Coral Tunicate Bare Hard Substrate Other	Octocoral	i				Octocoral	\leq		
Tunicate Bare Hard Substrate Other Total Must = 100% List macroelgae Genus % over List every coral colony -and coral condition(s) Max Relief (cm) Sessille Benthos Sediment- (circle all: and shell mud) Macroelgae- Fleshy+Calcareous Truf-algae-tyanobacteria (circle all: g r b) Encrusting Red Algae Sponge Hydrold Octocoral Stony Coral Tunicate Bare Hard Substrate Other Truicate Bare Hard Substrate Other	Stony Coral	(,				Stony Coral	1_		ļ
Total Must = 100% Carrier Company Compa	Tunicate	(Tunicate	0		
Total Must = 100% Canal Label: List macroeligae Genus % % cover List every coral colorry -and coral condition(s) (cm)	Bare Hard Substrate	0				Bare Hard Substrate	/		
Cuad Label: List macroelgae Genus % Cover List every coral colorly -and coral condition(s) Cm) Cartifornia Cm Cm Cm Cm Cm Cm Cm C		12			_	other Annelid	1		
Cuad Label: List macroelgae Genus % Cover List every coral colorly -and coral condition(s) Cm) Cartifornia Cm Cm Cm Cm Cm Cm Cm C		1000				Total Man	1 = 1009/	<u> </u>	
Company	1 Otal Mus	St = 100%	I int macmalage Genus 9	6 cover	3		100%	l ist macroalnae Genus	% % C
Max Relief (crit) Sessite Benthos Sediment- (circle sit: sand shell mud) Macrosige- Fleshy+Celcareous Turi- algae+cyanobacteria (circle all: g r/b))/o Encrusting Red Algae Sponge Hydrold Octocoral Stony Coral Tunicate Bare Hard Substrate other Max Relief (crit) Max Sediment Depth (cm) Sessite Benthos Sediment- (circle sit: sand shell mud) Max Sediment Depth (cm) Sessite Benthos Sediment- (circle sit: sand shell mud) Macrosige- Fleshy+Calcareous Turi- algae-cyanobacteria (circle sit: g r b) Encrusting Red Algae Sponge Hydroid Octocoral Stony Coral Tunicate Bare Hard Substrate other Other	■ -	25	List every coral colony	or max size				List every coral colony	or max siz
Max Sediment Depth (cm) Sessile Benthos Sessile Benthos Sediment Depth (cm) Sediment De	Max Relief (cm)	111			7	Max Relief (cm)	1		
Sediment- (circle dil: sand shell mud) C		5	Carrida	1/2	1				
Sediment- (circle aff: sand shell mud) Capto - V 37/35/32		% Cover	Cesto-V	75/			% Cove		
Macroalgae- Fleshy+Calcareous Turt- algae+cyanobacteria (circle all: g TD) / 0 Encrusting Red Algae Sponge Hydroid Octocoral Stony Coral Tunicate Bare Hard Substrate other Macroalgae- Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r b) Encrusting Red Algae Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r b) Encrusting Red Algae Sponge Hydroid Octocoral Stony Coral Tunicate Bare Hard Substrate other Other	Sediment	10	. 0 ;	37/35/3	۷.)		
Turf- algae+cyanobacteria (circle all: g r b) Encrusting Red Algae Sponge Hydroid Octocoral Stony Coral Tunicate Bare Hard Substrate other Sryoz	Macroalgae-			,		Macroalgae-			
Encrusting Red Algae Sponge Hydroid Octocoral Stony Coral Tunicate Bare Hard Substrate other Sryoz Hencrusting Red Algae Sponge Hydroid Octocoral Stony Coral Tunicate Bare Hard Substrate other Other	Turf- algae+cyanobacteria	017		1 '					
Hydroid Octocorel Stony Corel Tunicate Bare Hard Substrate other Tyoz		4	Deribe in	4		Encrusting Red Algae			
Octocorel Stony Corel Tunicate Bare Hard Substrate other Octocoral Stony Corel Tunicate Bare Hard Substrate other Other	Sponge	1	O.rob= 1cm	1//		Sponge			
Stony Corel Tunicate Bare Hard Substrate Other Stony Corel Tunicate Bare Hard Substrate Other	Hydroid	1				Hydroid			
Tunicate Bare Hard Substrate Other Di yoz Other	Octocoral	1				Octocoral .			
Bare Hard Substrate Other Divided: Divi	Stony Corai	/				Stony Corel	_		
other Br yoz other	Tunicate	1/				Tunicate			
		2				Bare Hard Substrate			
Total Must - 1009/	otherBryoz	1				other			
	,	104 m 48 65					12 - 12 - 12 - 12 - 12 - 12 - 12 - 12 -		

Standard Abbreviations: and abbreviation formats Macroelgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarn, Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudoplerogorgia=Pspt, Plexaurelia=Plia, Pseudoplexaura=Pst Stony Coral: Genus species of each colony = G spe: A cer, A spa, C nat, M ann, M cay, P ame, O dif, S rad, S sid, S bou, S hya, S in Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora, sp., Seagrass, Zoanthid.

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Quad Label: 3	\supset	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6	0.106	
Max Sediment Depth (cm)	1	0.10h 1111	2
Sessite Benthos	% Cover	THON	
Sediment- (circle all: sand shell mud)	68	THAIN	5
Macroalgae- Fleshy+Calcareous	,	C.Mr	32
Turf- algae+cyanobacteria (circle all: g r b)	8	J VIV	3
Encrusting Red Algae	\	(Pari	4
Sponge	Ú		,
Hydroid	Ť.		
Octocoral	0		
Stony Coral	1		
Tunicate			
Bare Hard Substrate	0		
other D.U.D	:		
()	1		

Quad Label: 2	F4.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max si- (cm)
Max Relief (cm)	4.		
Max Sediment Depth (cm)	8		
Sessile Benthos	% Cover		
Sediment- (circle all sand shell mud)	98		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae			
Sponge			
Hydroid	_		
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other			
` `			

Total Must = 100%

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	,		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral		Mark Michigan	
Stony Coral /	<u> </u>		
Tunicate			
Bare Hard Substrate			
other			
	1		1

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cov. or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae		<i>V.</i>	
Sponge		された	
Hydroid			
Octocoral		100	14
Stony Coral		1 7	
Tunicate		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	/
Bare Hard Substrate			1
other			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Total Must = 100%

Macroelgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plia, Pseudoptexaura=Pspl

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora, sp., Seagrass, Zoanthid.

Project Name	NTSG.	1-1C	Site Name / Transect Name

Date 8/38	106		Data Coll	ecto	or JC	_	Data Entry	· Pitter
Quad Label:	$: \cap$	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)		luad Label:	75	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
fax Relief (cm)	Ó			м	ax Relief (cm)		Tilain	5
Max Sediment Depth (cm)	9			М	ax Sediment Depth (cm)	6	***	
Sessile Benthos	% Cover			<u>s</u>	essile Benthos	% Cover		
Sediment- circle all: sand shell mud)	91			S	ediment- circle all: sand shell mud)	95	0.06	
Macroalgae- Fleshy+Calcareous				N	lacroalgae- leshy+Calcareous		ld [*]	
Turi- algae+cyanobacteria (circle all: g r b)	()			7	urf-algae+cyanobacteria circle all: g r b)			
Encrusting Red Algae	1			, F	ncrusting Red Algae	·)		
Sponge	1			3	Sponge			
Hydroid	0	THAN	9	1.0	lydroid			4 2.
Octocoral	1	Car		1	Octocoral	_\		
Stony Coral		20 01			Stony Coral			
Tunicate	0		Q //		Tunicale			
Bare Hard Substrate		000	<u> </u>		Bare Hard Substrate	\\		
other USUN	\	10 m	1 /		other hryo	100		
		I vew Could	trim 18	jon.)			
Total Mus	t = 100%)	, , ,	Total Mus	t = 100%	100	<u> </u>
Quad Label: Sample Name or#	15	List macroalgae Genus List every coral colony ~and coral condition(s)	% cover or max size (cm)	$\ \ $	Quad Label:	25	List macroalgae Genus List every coral colony ~and coral condition(s)	% % c or max 5/2 (cm)
	12	Livira	140	1 1		14	Lina	3.4
Max Relief (cm)	19	11. Vira	44	1	Max Relief (cm) Max Sediment Depth (cm)	8	Time	
Max Sediment Depth (cm) Sessile Benthos	% Cove		140	11	Sessile Benthos	% Cove		9
Sediment-	,96		13	1	Sediment- (circle all: sand shell mud	OLL	TAGU	4
(circle all: sand shell mud Macroalgae- Fleshy+Calcareous		Titons	12	1	Macroalgae- Fieshy+Calcareous	0	Cari	15
Turf- algae+cyanobacteria (circle all: g r b)		· LVICA	(30)	1	Turf- algae+cyanobacteria (circle all: g r b)		Car	3
Encrusting Red Algae				1	Encrusting Red Algae	1		
Sponge				7	Sponge	__		
Hydroid				7	Hydroid)	
Octocorel	3			_	Octocoral			
Stony Coral					Stony Coral	(C)		
Tunicate	-			-	Tunicate	1		
Bare Hard Substrate	i			_	Bare Hard Substrate)		
other				_	other TOTUO	Ì		
	ust = 100%					ust = 100%		
Total Mi	IET = 100%				Total Mi	181 = 100%		

Standard Abbreviations: and abbreviation formats Macrosigne: Red to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasyciadus, Grac, Hali, Hypn, Sarg, Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurelle=Plla, Pseudoptexaure=Psp. Stony Coral: Genus species of each colony = G spe; A cer, A aga, C nat, M ann, M cay, P ame, O dif, S rad, S sid, S bou, S hya, S in Coral condition; W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other-Includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora, sp., Seagrass, Zoanthid.

Data Collector

Data Entry

Quad Label:	0	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
fax Relief (cm)	3	· VIY	25
Max Sediment Depth (cm)	5	1 heb	10
Sessile Benthos	% Cover	(Nat	. <
Sediment- circle all; sand shell mud)	94	THAN	10
Macroalgae- Fleshy+Calcareous	0	THAN	10
Turf- algae+cyanobacteria (circle all: g r b)	0	Thean	3
Encrusting Red Algae	\.	Total	7
Sponge		7,4(2.)	3
Hydroid		THON	10
Octocoral	6	"TITGE	2
Stony Coral		THan	5
Tunicate	IÕ	intan	2
Bare Hard Substrate			
other 100 773	1		
)		
Total Mu	st = 100%		

Quad Label: Sample Name or #	7.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8	000	1
Max Sediment Depth (cm)	9	101	
Sessile Benthos	% Cover	7.36.7	2
Sediment- (circle all; sand shell mud)	89		14
Macroalgae- Fleshy+Calcareous	\bigcirc	:-	(
Turi- algae+cyanobacteria (circle all: g r b)		į (9
Encrusting Red Algae		()	
Sponge		(Nice	<u></u>
Hydroid		1 1101	
Octocoral	3	()11.7	
Stony Coral	\ \\.	11113 -	
Tunicate	\	(hub	
Bare Hard Substrate	3	Car. C	
other \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	\	1 Orois	
(LOTO)	st = 100%	THE	1. 4.

Quad Label: 2	5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	(0)	200 C	0
Max Sediment Depth (cm)	5	O vio	- 0
Sessile Benthos	% Cover	Orob W	1
Sediment- (circle all: sand shell mud)	88	.VIFA	28
Macroalgae- Fleshy+Calcareous	\bigcirc	VO	50
Turf- algae+cyanobacteria (circle all: g r b)	1.	LVKd	40
Encrusting Red Algae	1.	Lyira	156
Sponge	5	THan	5
Hydroid	\bigcirc		10
Octocoral	3	·	3
Stony Coral	1		1.7
Tunicate	0		9
Bare Hard Substrate			17
other	1	V	4
Drun		(01)(5) = 1	

7012, 11101		[.130]	
Quad Label: 5)	List macroalgae Genus % List every corat colony ~and coral condition(s)	% cov or max (cm)
Max Relief (cm)	5	LVII	30
Max Sediment Depth (cm)	3	CVIV	34
Sessile Benthos	% Cover	i litan	
Sediment- (circle all: sand shell mud)	70		: 1
Macroalgae- Fleshy+Calcareous	with the same of t	/	1 ;
Turf-algae+cyanobacteria (circle all: g r b)	15	-	l cx
Encrusting Red Algae			(-)
Sponge	3	:	8
Hydroid	\bigcirc	/ "	6
Octocoral	2		5
Stony Coral		·	1,3
Tunicate	\bigcirc)
Bare Hard Substrate	5		10
other(LUÓY Y)	2		7
CILLIO	1 1	(1) 10 m/s	0-1

Standard Abbreviations: and abbreviation formats

Total Must = 100% Total Must = 100% Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg... Octocoral: Genus of each colony = Genu: Gorg. Lept. Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plia, Pseudoptexaura=Pspt
Stony Coral: Genus species of each colony = G spe; A cer. A aga, C nat, M ann, M cay, P ame, O dif, S rad, S sid, S bou, S hva, S int...
Coral condition: W=white disease(s), O=chie disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora, sp., Seagrass, Zoanthid.

Dro	iect	N	ame

Date

Site Name / Transect Name Of Scott

Data Coll

		 	V /	
ector	CiC.		Data	Entry

Quad Label: Sample Name or #	0	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	<u> 25 </u>	Onic	7
Max Sediment Depth (cm)	9_	Can 30	
Sessile Benthos	% Cover	. ,	5
Sediment- (circle all: sand shell mud)	25	2/	+
Macroalgae- Fleshy+Calcareous	7	Ciric	1.5
Turi- algae+cyanobacteria (circle all: g r b)	31		
Encrusting Red Algae	1		
Sponge	2		
Hydroid	1		
Octocoral			
Stony Coral	1		
Tunicate	10		
Bare Hard Substrate	3		
other	Ö		
OPC	5		

List every coral colony

-and coral condition(s)

(C)

29

7(0

Quad Label: Sample Name or#	5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cove; or max size (cm)
Max Relief (cm)	(0	O tob T	
Max Sediment Depth (cm)	1	<u>0.u5</u>	11
Sessile Benthos	% Cover	C) roly	9
Sediment- (circle ali: sand shell mud)	0	() rd	18
Macroalgae-		10 rdj	2
Turf- algae+cyanobacteria (circle all: g r b)		Ci. K. L	14-
Encrusting Red Algae	()	$\mathcal{L} = \mathcal{L} \cup \mathcal{L}$	2
Sponge			175
Hydroid	\bigcirc		
Octocoral	1.1-	(1)	
Stony Corel	I.		
Tunicate		1 (1)	,
Bare Hard Substrate	3	<u> </u>	
other COTT	8	Post	
15 TO-			

Total Must = 100%

% Cover

2

Q

Total Must = 100%

Quad Label:

Max Sediment Depth (cm)

(circle all: sand shell mud)

Sample Name or #

Sessile Benthos...

Fleshy+Calcareous Turi- algae+cyanobacteria (circle all: g r b

Encrusting Red Algae

Sediment-

Sponge **Hydroid** Octocoral

Stony Coral

Bare Hard Substrate

Tunicate

other-.

Macroalgae-

Max Relief (cm)

List macroalgae Genus % | % cover or max size (cm) 6 0/ O

Total Must = 100%						
Quad Label: Sample Name or#	15	List macroalgae Genus % List every coral colony -and coral condition(s)	% c or max size (cm)			
Max Relief (cm)		Chia				
Max Sediment Depth (cm)	0		,			
Sessile Benthos	% Cover	L . W CA	58			
Sediment (circle all: sand shell mud)	9		9:			
Macroalgae- Fleshy+Calcareous	?		1. 19%			
Turf- algae+cyanobacteria (circle all: g r b)	1.8	13.00	. /			
Encrusting Red Algae	2	1 vita	177			
Sponge	2	LAILICE.	73			
Hydroid		ledus.	18"			
Octocoral	7		15			
Stony Coral	14		30			
Tunicate		.!	12			
Bare Hard Substrate	/-	4	11/			
other ()	2	<i>j</i>	3			
brui			-			

Standard Abbreviations: and abbreviation formats Macrosigae: Pool to Genus = Genus Genus: Avra, Bryopsis, Bryothermion, Caul, Codi, Dasye, Dasveladus, Grac, Hali, Hypn, Sarr. Octocoral; Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurelia=Plia, Pseudoptexaura=Pst Stony Coral: Genus species of each colony = G spe: A cer. A age, C nat. M ann. M cay, P ame, O dif, S rad, S sid, S bou, S hye, S in Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Total Must = 100%

Other-includes; Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora sp., Seagrass, Zoanthid,

Quad Label: Sample Name or #	0	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10	Annis	4
Max Sediment Depth (cm)	0	(that	3
Sessile Benthos	% Cover	Said	7
Sediment- (circle all sand shell mud)	13	0 mb	8
Macroalgae- Fleshy+Calcareous		D. roh	
Turf- algae+cyanobacteria (circle all: g r (b))	54)	O_{\setminus}
Encrusting Red Algae	0	/ 11	4
Sponge	8		2
Hydroid	3		(3)
Octocoral	2		0
Stony Corel	3	\ \d	5
Tunicate	0	Orob	10
Bare Hard Substrate	2	(m 201/	35 0
other ((1))	Ġ		JA 5
10740		5-	JE EL

Quad Label:	L,5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)		Error-6	
Max Sediment Depth (cm)	2	A 10/14	
Sessile Benthos	% Cover	Sain-3	
Sediment- (circle all; sand shell mud)	12	(claic)	9
Macroalgae- Fleshy+Calcareous	15	0.105	7
Turf- algae+cyanobacteria (circle all: g r b)	49	(), NOO	2
Encrusting Red Algae	3:	<u> Од Па</u>	8
Sponge	(0	(, , , , , , , , , , , , , , , , , , ,	
Hydroid			5
Octocoral	5	1	00
Stony Corel	2	1.75	3
Tunicate		Lifa,	
Bare Hard Substrate	2		
other	2	Tito .	15
- DE40	1.	Air 6,05	\$. 5.

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	7	Cuac	8
Max Sediment Depth (cm)		Almoti.	十
Sessile Benthos	% Cover	DiCH	,
Sediment- (circle all; sand shell mud)	15	Sara '	
Macroalgae- Fleshy+Calcareous	10	60 Air	19
Turf- algae+cyanobacteria (circle all: g (r , b))	50	1 Vict	60
Encrusting Red Algae	2	Titainal	10
Sponge	1	0.000	
Hydroid	1		0
Octocoral	15	((111)	9
Stony Corel	14)
Tunicate	2	/	13
Bare Hard Substrate	3	· V	19
other With	0	Cari Said	7,5,3,4
Ourd	2		2,43

Quad Label: Sample Name or #	1.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max (cm)
Max Relief (cm)	5	Cess	12
Max Sediment Depth (cm)		Angola.	4
Sessile Benthos	% Cover	4	
Sediment- (circle all: sand shell mud)	12	OND (m)) 2
Macroalgae- Fleshy+Calcareous	18		4
Turi- algae+cyanobacteria (circle all: g (r) b)	40		13
Encrusting Red Algae		Car sold	
Sponge			Ü
Hydroid	9	. : \((
Octocoral	Ì	J (15	2
Stony Coral			
Tunicate	(4)		
Bare Hard Substrate	5		
other LOTH	0		
110	11		

Total Must = 100% Standard Abbreviations: and abbreviation formats

Total Must = 100%

Macroalgae: Pool to Genus = Genu or Genus: Avra. Bryopsis, Bryotharmion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sandard Codocoral: Genus of each colony = Genu: Gorg, Lept, Plex., except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoptexaura=Pspt Stony Coral: Genus species of each colony = G spe: A cer. A aga, C nat, M ann, M cav. P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora, sp., Seagrass, Zoanthid.

et B	,000 (,/)	2/5 2/5	01,5	083.	CICOS,
	oiect N				

Date

Site Name / Transect Name

Data Collector

ata Conector			Data Entry		
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cover max size		Quad Label:	02.5		% or i

Quad Label: (0	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	C.	2011/	5
Max Sediment Depth (cm)		Empi.	. [-]
Sessile Benthos	% Cover	Saia_	0
Sediment- (circle all:\sand\shell mud)	15		
Macroalgae- Fleshy+Calcareous	10	heb	21
Turf- algae+cyanobacteria (circle all: g r b)	155	n mb) &
Encrusting Red Algae	· <i>J</i> :	0 rdb	1
Sponge	(0	$\sim do.0$	3
Hydroid	2	Can SDE	6月1
Octocoral	3.	(I)) 4
Stony Coral	5	((I) W	12
Tunicate	12		13
Bare Hard Substrate	0	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	\cap
other 01 H O	6		
(COM)	7		

Total	Must	=	100%

Quad Label: 28	2.5	List macroalgae Genus % List every coral colony -and corel condition(s)	% cover or max size (cm)	
Max Relief (cm)	,2	$\int U dx$	4.1	
Max Sediment Depth (cm)	3	ALAUN		
Sessile Benthos	% Cover	SSEVET		
Sediment- (circle all sand shell mud)	Ç			
Macroalgae- Fieshy+Calcareous	13-		-/	
Turf- algae+cyanobacteria (circle all: g r b)	52	LOUG, [63	
Encrusting Red Algae	3	0 0G	;	
Sponge	(0	0.m	i y	
Hydroid	1	Own. A.		
Octocoral	3	Man July		
Stony Corel		Car	1	
Tunicate	2	Car U		
Bare Hard Substrate	10	Ca. 0	13	
other (\\\(\)(\)(\)	Ì	() ob	, O	
Oruio				

Total Must = 100%

Total Must = 100%					
Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)		
Max Relief (cm)					
Max Sediment Depth (cm)					
Sessile Benthos	% Cover				
Sediment- (circle all: sand shell mud)					
Macrosigae- Fleshy+Calcareous					
Turf- algae+cyanobacteria (circle all: g r b)	,				
Encrusting Red Algae					
Sponge					
Hydroid					
Octocoral	<u> </u>				
Stony Coral					
Tunicate					
Bare Hard Substrate					
other					
	1				

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony -and coral condition(s)	% CI or maxe
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud) Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae Sponge			
Hydroid			
Octocoral			
Stony Coral	<u> </u>		<u> </u>
Tunicate			
Bare Hard Substrate			
other	ļ		
1			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Total Must = 100% Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarq. Octocoral: Genus of each colony = Genu: Gorg. Lept. Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plia, Pseudoptexaura=Psp Story Coral: Genus species of each colony = G spe: A cer. A aga, C nat, M ann, M cay, P ame, O dif, S red, S sid, S bou, S hya, S interest condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other-includes: Anemone, Annelid-sessile, Bamacle, Bivalve, Bryozoan, Millepore, sp., Seagrass, Zoanthid.

Project Name . \sqrt{c}	\mathcal{C}
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Site Name / Transect Name

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Data Collector

Data Entry

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Quad Label: /	Ó	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	/	Ampliroe	6
Max Sediment Depth (cm)	2	Sarg)
Sessile Benthos	% Cover	Grac	, , , , , , , , , , , , , , , , , , ,
Sediment- (circle all: sand_shell mud)	10		
Macroalgae- Fleshy+Calcareous	CZ	Car.109	12/1/4/3
Turf- algae+cyanobacteria (circle all: g /f jb)30	52-	1 = p/0 -V	42/48
Encrusting Red Algae	4	Cariloa	5/4/4/=
Sponge	6	U, rob	3/1/10
Hydroid	2	Carjua	2/12/2
Octocoral	4	O. rob	10/1/2/2
Stony Coral		Lenterh	16/7
Tunicate	6	Cinri 12 en	4/03
Bare Hard Substrate	2	17.22.11A10.11	6
other Bryoz	3		
7.7.			

Quad Label: 27,5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6	· emphira	6
Max Sediment Depth (cm)		Sirs-	12.
Sessile Benthos	% Cover	Grac	1
Sediment- circle all; sand shell mud	12	Carlion	2/2/1/1
Macroalgae- Fleshy+Calcareous	10	O. rob	2/3/2/1
Turf-algae+cyanobacteria (circle all: g (f) b/) /	061	Tidemnum.	18/6
Encrusting Red Algae	4	Carrion	1/2/1/11
Sponge	8_	c, rolo	1/2/2
Hydroid	3	Carlion	1/1/1/2
Octocoral		2, r.b	-1413
Stony Corel	/ I_	E, co	3/1/1 +
Tunicate	6	Carjua	1/2/1/2
Bare Hard Substrate	1	Carijoa	l/
otherBr 707-	2	J	
Bivatre	i		

Total Must = 100%

Total Must = 100%

I Olai Must	- 100%		
Quad Label: 2	5 m.	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	-	like Gracelong	
Max Sediment Depth (cm)	~	5-18	2
Sessile Benthos	% Cover	Anshroa	4
Sediment- (circle all:/sand shell mud)	6	Carijea	3/2/5
Macroalgae- Fleshy+Calcareous	8 1	iepto-h	7
Turi- algae+cyanobacteria (circle all: g r b)	60/	Lcv = 0 - V	14/65/47
Encrusting Red Algae	6	Ceptu-V	40/70
Sponge	5	Corne	1/2/2/2
Hydroid	3	2,35	1/2/1
Octocoral	4	0.006	54/1
Stony Coral		(arijoa	3/2/1
Tunicate	5_		, ,
Bare Hard Substrate	1 ML	1	
other Annelist	17		

Total Must = 100%			
Quad Label:		List macroalgae Genus % List every coral colony ~and coral condition(s)	% C. or max
Max Relief (cm)			
Max Sediment Depth (cm)			. 4
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			<u> </u>
Sponge			
Hydroid			* "
Octocoral			
Stony Coral			
Tunicate	ļ		
Bare Hard Substrate			
other		·	
		1	

Standard Abbreviations: and abbreviation formats

Total Must = 100%

Acroelgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasva, Dasvoladus, Grac, Hali, Hypn, Sarg, Octooral: Genus of each colony = Genu: Gorg, Lept, Plex., except Pseudopterogorgia=Pspt, Plexaurella=Plia, Pseudoptexaura=Pspt, Stony Coral: Genus species of each colony = G.spe: A cer, A aga, C nat, M ann, M cay, P.sme, O dif, S rad, S sid, S bou, S hya, S in Coral condition: W=white disease(s), 0=other disease(s), B=bleaching, Coral Stress Index # 0. 1. 2. 3

Other-includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepore sp., Seagrass, Zoanthid.

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Data Collector

Data Entry

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Quad Label: Sample Name or #	1-0	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10	Targ	4
Max Sediment Depth (cm)	2	V /030 - 120	3
Sessile Benthos	% Cover	(5/46	8
Sediment- (circle all: sand shall mud)			
Macroalgae- Fleshy+Calcareous	10	J. 30. 10m	12/6
Turf- algae+cyanobacteria (circle ali: g r b) 49	51). 1	
Encrusting Red Algae	1	cy ? - /	6-1/85
Sponge	8	W. rub	2/3
Hydroid	1	(arijoc	1816
Octocoral	2	17.006	4/4
Stony Coral	97	O. rob	7/3
Tunicate	()	Colon	1/2/9
Bare Hard Substrate	1	0.00	1/1
other	1		3/3/1
	, i		43

Quad Label: 37,5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	G	Sarv	, T
Max Sediment Depth (cm)	/	Grai	
Sessile Benthos	% Cover	, ,	5
Sediment- (circle all:/sand shell mud)	1		
Macroalgae- Fleshy+Calcareous	/3	Orrob	1/3/1/3
Turf-algae+cyanobacteria (circle all: g r /b) 2	55	Collins	1/3/1
Encrusting Red Algae	4	Carlon	1/2/:
Sponge	1/2	Oirb.	= 3,4
Hydroid	2	Diron	1/3/4
Octocoral	0	Carnon	1/8/1
Stony Coral	5	Carlio.	1/2
Tunicate	5	Orsb	3/1
Bare Hard Substrate	3		
other 1. Va 1/2			
Kr. nel.	1	Bryoz	1/

Total made = 100%			
Quad Label: 3	5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1.1	Sorav	3
Max Sediment Depth (cm)	1	Wally of a	3
Sessile Benthos	% Cover	Lundwig	5
Sediment- (circle all: sand shell mud)	12	V	
Macroalgae- Fleshy+Calcareous	2	0,006	4/1/5
Turi- algae+cyanobacteria (circle all: g r (b /)2.9	39.	Carijoa	12/4/1
Encrusting Red Algae	5	Le, No-V	100
Sponge	j2	Virolo	3/3,6
Hydroid	()	Conjuc	5/3/1/1
Octocorei	J.	Carijoa	1//1/2
Stony Coral	2	J. rob	6/1
Tunicate	8	CAMOS	2/1/3
Bare Hard Substrate	2	Lexto-h	6
other-In helid		Tridempun	24-=
Bivelue		Barnaclo.	1

Total Must = 100%			
Quad Label: 32.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% c. or mex size (cm)
Max Relief (cm)		591×	5
Max Sediment Depth (cm)		Grac	7
Sessile Benthos	% Cover	4.4,21.100	5
Sediment- (circle all: sand shell mud)	~	Le,070-V	13/34
Macroalgae- Fleshy+Calcareous	12	O. rob	2/2/:12
Turf- algae+cyanobacteria (circle all: g r b)	52	Lepto-h	13
Encrusting Red Algae	4	Carijon	4/1/1/1
Sponge	8	Carrioa.	1/9/1/1
Hydroid	3	Orrob	1/1/5
Octocoral .	12	Toichammun	6/8
Stony Coral	2	Carioa	2/4/
Tunicate	6	Carijon.	4/1111
Bare Hard Substrate	2	0.10b	1/5/21
other In nelid	1	Carijua	2-1
		,	

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Total Must = 100% Macroelgae: Pool to Genus = Genu or Genus: Avre, Bryopsis, Bryothamnion, Caul, Codi, Dasva, Dasvoladus, Grac, Heli, Hypn, Saro, Octocoral: Genus of each colony = Genu; Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexeurella=Plle, Pseudoptexeura=Psi Stony Coral: Genus species of each colony = G spe; A cer, A age, C nat, M ann, M cay, P ame, O dif, S rad, S sld, S bou, S hyla, S ir Coral condition; W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other-includes; Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepore, sp., Seagrass, Zoanthid.

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Date 8/29/00

Data Collector

Data Entry

Quad Label:	0	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	12	Sarg	3
Max Sediment Depth (cm)		Dunyhirva	3
Sessile Benthos	% Cover	· · · · · · · · · · · · · · · · · · ·	3
Sediment- (circle all: sand shell mud)	2		
Macroalgae Fleshy+Calcareous	10	Lepto-h UTitanideum	
Turf- algae+cyanobacteria (circle all: g r b /)	67	1 Titanideun	28
Encrusting Red Algae	5-	Carijua	6
Sponge	5	U.rob	3
Hydroid	Washi rua	Le. 13 - V	42
Octocoral	\$2	(300,000	16
Stony Coral		Culion	3
Tunicate	3	Cavior	3
Bare Hard Substrate	2.	Orob	3
other	2	Carion	4/6/3
OMMOT AN	12		. : -

Quad Label: Sample Name or #	75	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6	6-1	3
Max Sediment Depth (cm)	2	9-18	
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)	35	Lepto-V	29
Macroalgae- Fieshy+Calcareous	5	Carilon	8/8
Turf-algae+cyanobacteria (circle all: g r b) 15	39	1 Titanideum	9
Encrusting Red Algae	3	Carrier	3/4
Sponge	5	1 2000 1	63
Hydroid	2	Leyto-V	5
Octocoral	Ĺ	Leyto-V Lottonideum	17
Stony Corel	1.	4 Fitanideum	5
Tunicate	4		
Bare Hard Substrate	/		
other Bc_2 $>$ \geq	1		
Annelid		· · ·	
7MC Total Mus	st = 100%	<u> </u>	

Quad Label:	5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1	Sary	4
Max Sediment Depth (cm)	1	Grac	5
Sessile Benthos	% Cover	Lunkiron	
Sediment- (circle all: sand shell mud)	15	Ų	
Macroalgae- Fleshy+Calcareous		O. rob	3
Turf- algae+cyanobacteria (circle all: g r b) 2-	41.	Levilo V	32
Encrusting Red Algae	Ġ	Carno	2
Sponge	Lf	1	ć
Hydroid	-	Levil - 6	
Octocoral	5	Longing	65
Stony Coral	/	Q.vob	3
Tunicate	10	Orrob	3
Bare Hard Substrate			
other-Annelial	82		

7 (1) Total Must = 100%				
Quad Label: 4	2.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% covr or max (cm)	
Max Relief (cm)	27	G5a-	30	
Max Sediment Depth (cm)	_ /	Sarg		
Sessile Benthos	% Cover	h !	21	
Sediment- (circle all: sand shell mud)	2	Cepto-1	30	
Macroalgae- Fleshy+Calcareous	32	Orolo	9	
Turf- algae+cyanobacteria (circle all: g r b)20	42	Carijoa	8/2	
Encrusting Red Algae	5		2/2	
Sponge	1	Carijoa	2/3/11	
Hydroid	2	O. Kob		
Octocoral				
Stony Coral	1			
Tunicate	10			
Bare Hard Substrate	1			
other [1777 <	2			
Synelial	1			

Standard Abbreviations: and abbreviation formats

Total Must = 100%

Acroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg, Octooral: Genus of each colony = Genu: Gorg, Lept, Plex, except Pseudopterogorgia=Pspt, Plexaurella=Ptla, Pseudoptexaura=Pspt Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int., Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

W. Killow Mis

Other-includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora sp., Seagrass, Zoanthid.

F	Project Name	11 <u>17.</u>	DC	Site Nam	ie / Ti	ransect Name	1011		
Ī	Date Solve	10-01	0	Data Col	lecto	r		Data Entry	. Files
	Quad Label: Sample Name or #	()	List macroalgae Genus % List every coral colony ∼and coral condition(s)	% cover or max size (cm)		uad Label:	17	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
ļ	Max Relief (cm)	-0	Lina		Ma	ax Relief (cm)	23	Mari.	<u> </u>
Ī	Max Sediment Depth (cm)	1	Ordo Co.	<i>K j</i>	M	ax Sediment Depth (cm)	Q_{\perp}	LVira	_2
r	Sessile Benthos	% Cover	O CO W.	/ . 	<u>Se</u>	essile Benthos	% Cover	O. W. M. M.	
	Sediment- (circle all: sand shell mud)	2	0 12	5	Se (c	ircle all sand shell mud)	14	0000	2
Ī	Macroalgae- Fleshy+Calcareous	1	(v M)	1-1-	M	scroalgae- eshy+Calcareous			
7	Turi- algae+cyanobacteria (circle all: g r b)	57	Cari		Ti	uri- algae+cyanobacteria ircle all: g r b)	15		
م [Encrusting Red Algae	9			do E	ncrusting Red Algae	<u> </u>		
0	Sponge	9	1011111		\(\frac{1}{8}\)	ponge	1	······································	
	Hydroid	1			1 1	ydroid			-
	Octocoral	9				Octocoral	1		
	Stony Corel	Ó.			_ <u> </u> s	itony Coral	1		ļ
	Tunicate	3			1 12	unicate	2		
	Bare Hard Substrate	2		<u> </u>	_	Bare Hard Substrate	1.		
	other	,				other, OVD	<u> </u>		
	170117	1	OMO.		ן נ	Dido	1.	<u> </u>	
	Total Must = 100%		,	Total Must = 1009		st = 100% 	List macroalgae Genus	% % c	
	Quad Label: Sample Name or #	·- •	List macroalgae Genus List every coral colony ~and coral condition(s)	% cover or max size (cm)		Quad Label: 🧂 Sample Name or#	7.5	List every coral colony -and coral condition(s)	or max size
	Max Relief (cm)	00	Sira] [Max Relief (cm)	10	Chi	5,8,4
	Max Sediment Depth (cm)	8	(OTI)	١		Max Sediment Depth (cm)	14	1.41.3	1 (e.).
	Sessile Benthos	% Cove	1 \. / \\/ \/ \/ \	10		Sessile Benthos	% Cove		7
	Sediment- (circle all: sand) shell much		O velo W))	_ 1	Sediment- (circle all: sand shell muc	05	2.00b 5	15 x 1
	Macroalgae- Fleshy+Calcareous	° >	0.106	14		Macroalgae- Fleshy+Calcareous	1	(100 m)	1 2.
	Turf- algae+cyanobacteria (circle all: g(r (b))					Turf- algae+cyanobacteria (circle all: g r)b))			
S.	Encrusting Red Algae				0	Encrusting Red Algae	7 2.		
808	Sponge	,			0	Sponge	2.		
	Hydroid	()				Hydroid	1		
	Octocoral	,				Octocoral	/		
	Stony Corel	1			_	Stony Coral	1		
	Tunicate	- ;				Tunicate	14		
	Bare Hard Substrate	[3				Bare Hard Substrate	15		
	other UDYM	1			_	other \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	1		
	bryo	1000				<u>Vryo</u>	<u> </u>		
	Total N	lust = 100%				1 O(8) N	1USI = 1UU%		_

Standard Abbreviations: and abbreviation formats

Total Must = 100%

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasva, Dasvoladus, Grac, Hali, Hypn, Sarg, Octobral: Genus of each colony = Genus: Gorg, Lept, Plex., except Pseudopterogorgia=Pspt, Plexaurella=Plia, Pseudoptexaura=Pst Stony Coral: Genus species of each colony = G.spe: A car, A ana, C nat, Mann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S in Coral condition: W=white disease(s), Q=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivatve, Bryozoan, Millepora, sp., Seagrass, Zoanthid.

Project Name Date		16.501	Data Colle	ect.			Data Entry	
Date	Υ(5-06	Data Oon			<u> </u>	Duta Littly	
Quad Label: Sample Name or #			% cover or max size (cm)		Quad Label:	2	List every coral colony	% cover or max size (cm)
Max Relief (cm))	Tri deminur	6	N	lax Relief (cm)	0		
Max Sediment Depth (cm)		ridemun	4	N	lax Sediment Depth (cm)	18		
Sessile Benthos	% Cover	19 mina	e i	2	essile Benthos	% Cover		
Sediment- (circle all: sand shell mud	95			- 10	sediment- circle all: sand shell mud)	100	N	
Macroalgae- Fleshy+Calcareous				Ŀ	Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)					urf-algae+cyanobacteria circle ali: g r b)			<u> </u>
Encrusting Red Algae				ŀ	Encrusting Red Algae			
Sponge				-	Sponge	-		
Hydroid				0	Hydroid			
Octocoral					Octocoral		41	
Stony Corel					Stony Coral			-
Tunicate	0				Tunicate			ļ
Bare Hard Substrate					Bare Hard Substrate	1		
other (\\)Y\	\				other	1-1		<u> </u>
7-1-11	ıst = 100%				Total Mu	st = 100%		
TOTAL MI	ist = 100%	List macroalgae Genus	/ i 0/ cours	1 1	- Total Wo	5(- 100%	List macroalgae Genus 9	6 % Ct
Quad Label: Sample Name or #	2,5	List every coral colony and coral condition(s)	or max size (cm)		Quad Label: Sample Name or #	0	List every coral colony -and coral condition(s)	or max (cm)
Max Relief (cm)					Max Relief (cm)	5	Iridem	13
Max Sediment Depth (cm	15				Max Sediment Depth (cm)	14	Irigen	124
Sessile Benthos	% Cove	<u>r</u>			Sessile Benthos	% Cove	a Ochlu	1
Sediment- (circle all send shell mu	d) 100				Sediment- (circle all: sand shell muc) <u> </u>) it	
Macroalgae- Fleshy+Calcareous					Macroalgae- Fleshy+Calcareous		(1	12
Turf- algae+cyanobacteri (circle all: g r b)	a				Turf- algae+cyañobacteria (circle all: 「g /r / b))	5		1
Encrusting Red Algae					Encrusting Red Algae	0	ĺ\	1
Sponge				26	Sponge		((13
Hydroid				7	Hydroid		(1	
Octocoral					Octocoral			
Stony Corel					Stony Coral			1

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Bare Hard Substrate

<u>Tunicate</u>

other-...

Total Must = 100% Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg., Octocoral: Genus of each colony = Genu: Genu. Lept, Plex., except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoptexaura=Pspt Stony Coral: Genus species of each colony = G spe; A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S into Coral condition; W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other-includes: Anemone, Annelid-sessile, Barnacke, Bivalve, Bryozoan, Millepora, sp., Seagrass, Zoanthid.

140Z

Bare Hard Substrate

Tunicate

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Bare Hard Substrate

Octocoral

Stony Coral
Tunicate

other-..

t = 100%

Macrosigne: Pool to Genus = Genu or Genus: Ayra, Bryopsis, Bryothamnion, Caul. Codi, Dasva, Dasvoladus, Grac, Hali, Hypn, Saro...

Octocoral: Genus of each colony = Genu: Genu. Cent. Plex... except Pseudopteroporgis=Pspt, Plexaurella=Plia, Pseudoptexaura=Pspt
Stony Coral: Genus species of each colony = G spe; A cer. A aga, C nat, M ann, M cay, P ame, O dif, S rad, S sid, S bou, S hya, S int.,
Coral condition: W=white disease(s), O=ofther disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Bare Hard Substrate

7)()LW

Octocoral
Stony Coral

Tunicate

Other-includes: Anemone. Annelid-sessile. Barnacle, Bivalve, Bryozosn, Millepora ap., Seagrass, Zoanthid,

Project Name			Site Nam	e /	Transect Name)	S 11	
Date		-	Data Col	ec	or	Data Entry		
		List macroalgae Genus %	% cover				List macroalgae Genus %	% cover
Quad Label: 3	7,5	List medicalgae Genus % List every coral colony ~and coral condition(s)	or max size (cm)		Quad Label:	35	List every coral colony ~and coral condition(s)	or max size
Max Relief (cm)	0				Max Relief (cm)			•
Max Sediment Depth (cm)	12				Max Sediment Depth (cm)	19		
Sessile Benthos	% Cover				Sessile Benthos	% Cove		
Sediment- (circle all: sand shell mud)	100			1	Sediment- (circle all; sand shell mud)	100		
Macroalgae- Fleshy+Calcareous		·			Macroalgae- Fleshy+Calcareous			
Turf-algae+cyanobacteria (circle all: g r b)					Turf-algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae				Š	Encrusting Red Algae			
Sponge				1 1	Sponge			
Hydroid					Hydroid			
Octocoral					Octocoral			_
Stony Coral				1	Stony Coral			
Tunicate	-			-	Tunicate			
Bare Hard Substrate			-	-	Bare Hard Substrate	1		
other	-			┨	other	 		
Total Mus	1= 100%]	Total Mus	st = 100%		<u> </u>
		List macroelgae Genus	% % cover	7			List macroalgae Genus	% % c
Quad Label: 3	2.5	List every coral colony ~and coral condition(s)	or max size (cm)		Quad Label: Sample Name or #	<u>30</u>	List every coral colony ~and coral condition(s)	or max
Mex Relief (cm)					Max Relief (cm)	0		
Max Sediment Depth (cm)	17]	Max Sediment Depth (cm)	20		_
Sessile Benthos	% Cove	<u>er</u>		1	Sessile Benthos	% Cov	<u>rer</u>	
Sediment- (circle all sand shell mud)	100				Sediment- (circle all; sand shell muc	10	D	
Macroalgae Fleshy+Calcareous	0				Macroalgae- Fieshy+Calcareous	1		
Turi- algae+cyanobacteria (circle all: g_r b)					Turf-algae+cyanobacterie (circle atl: g_r b)		·	
Encrusting Red Algae					Encrusting Red Algae			
Sponge]\$	Sponge	1		
Hydroid				1	Hydroid			
Octocoral	1-1-				Octocoral			
Stony Coral				4	Stony Coral	11		
<u>Tunicate</u>	1			_	Tunicate	14		_

Standard Abbreviations: and abbreviation formats

Bare Hard Substrate

other-.

Total Must = 100%

Macroelgae: Pool to Genus = Genu or Genus: Avra. Bryonsis, Bryothamnion, Caul. Codi. Dasva. Desvoladus, Grac. Hali. Hypn. Sarg.
Octocoral: Genus of each colony = Genu; Gorg. Lept. Plex..... except Pseudopterogorgia=Pspt, Plexaurella=Plia. Pseudoptexaura=Psi
Story Coral: Genus species of each colony = G spe: A cer. A aga, C nat. M ann. M cav. P ame. O dif. S rad. S sid. S bou, S hya. S in
Coral condition: W=white disease(s). O=other disease(s). B=bleaching. Coral Stress Index # 0 1 2 3
Other-includes: Anemone. Annelid-sessile. Barnacle. Bivalve. Bryozoen. Millepore. sp., Seagrass. Zoanthid. Total Must = 100%

Bare Hard Substrate

other-..

Date 🥄	<u> </u>	1010	Data Col	ect	tor AB		Data Entry	, Fileson
Quad Label: //		List macroalgae Genus %	% cover		Quad Label:	jr.		% cover
Sample Name or #	1.5	List every coral colony ~and coral condition(s)	or max size (cm)		Sample Name or #			(cm)
Max Relief (cm)	(Max Relief (cm)	$\hat{}$		
Max Sediment Depth (cm)	Γ				Max Sediment Depth (cm)	18.		
Sessile Benthos	% Cover				Sessile Benthos	% Cover		
Sediment- (circle all:(sand shell mud)	(ov				Sediment- / (circle all: sand/shell mud)	, DD		
Macroalgae- Fleshy+Calcareous	1	·			Macroalgae- Fleshy+Calcareous	\ \		
Turf- algae+cyanobacteria (circle ali: g r b)					Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae				\	Encrusting Red Algae	1 1 1 1 1 1 1		
				9	Sponge			
Sponge					Hydroid			+2 :
Hydroid				1	Octocorat	1		
Octocoral				1		No. of the state o		
Stony Coral				1	Stony Corel		_	
Tunicate				1	Tunicate			<u> </u>
Bare Hard Substrate			1	1	Bare Hard Substrate	1		
other			<u> </u>	1	other	-	· · · · · · · · · · · · · · · · · · ·	<u> </u>
Total Musi	l = 100%			١	Total Mu	st = 100%		1
Quad Label:	, , , , , , , , , , , , , , , , , , ,	List macroalgae Genus C List every coral colony	% cover	7	Quad Label:	\ 7)	List macroalgae Genus % List every coral colony	% co or max si
Sample Name or #	42.5	~and coral condition(s)	(cm)	4	Sample Name or #	70	-and coral condition(s)	(cm)
Max Relief (cm)	0				Max Relief (cm)	0		<u> </u>
Max Sediment Depth (cm))			Max Sediment Depth (cm)			
Sessile Benthos	% Cove	<u>r</u>			Sessile Benthos	% Cov	<u> </u>	
Sediment (circle all: sand/shell mud)	JIPD .				Sediment- (circle all: sand shell mu	d) , එ		
Macrosigae- Fleshy+Calcareous	1 /				Macroalgae- Fleshy+Calcareous			
Turi- algae+cyanobacteria (circle ali: g r b)					Turf- algae+cyanobacteri (circle all; g r b)	a \		
Encrusting Red Algae		:			Encrusting Red Algae			
Sponge					O ○ Sponge			
Hydroid					Hydroid			
Octocoral	1			_	Octocoral		·	
Stony Corel					Stony Coral			
Tunicate					Tunicate	1		
Bare Hard Substrate		\\			Bare Hard Substrate			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

other-.

Total Must = \$100%

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasyciadus, Grac, Hall, Hypn, Sarg...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoptexaura=Pspt

Stony Coral: Genus species of each colony = G spe; A cer, A aga, C nat, M ann, M cay, P ame, O dif, S red, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other-Includes; Anemone, Annelid-sessile, Barnacle, Biyalve, Bryozoan, Millepora sp., Seagrass, Zoanthid.

other-.

		List macroalgae Genus %	% cover				List macroalgae Genus %	% cover
Quad Label: Sample Name or #	~ I	List every coral colony	or max size (cm)		Quad Label: 🤌	,,, ,,	List every coral colony and coral condition(s)	or max siz
Max Relief (cm)	15	O. 977 19X	lan	1	Max Relief (cm)		A	'
Max Sediment Depth (cm)	4	Car			Max Sediment Depth (cm)	10		
Sessile Benthos	% Cover				Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)	3				Sediment- circle all: sand shell mud)	96		
Macroalgae- Fleshy+Calcareous	:			1 [Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g(r) b)	15			1 [Tur!- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae	/			1 1	Encrusting Red Algae	· ·		
Sponge	()			9	Sponge			
Hydroid				S	Hydroid		Ţ	
Octocoral	١				Octocoral			
Stony Coral	١				Stony Coral			
Tunicate					Tunicate			
Bare Hard Substrate	5	MANUAL MA			Bare Hard Substrate	1		
other () ()	1				other (TYD)			
((1))	1.							
	st = 100%			_	Total Mus	it = 100%		
Quad Label:	5	List macroalgae Genus 9 List every coral colony	or max size		Quad Label:	1.5	List macroalgae Genus List every coral colony	or max
Sample Name or #		-and coral condition(s)	(cm)	-	Sample Name or #	T	-and coral condition(s)	(cm)
Max Relief (cm)	110			-	Max Relief (cm)	10	***************************************	
Max Sediment Depth (cm)	112			4	Max Sediment Depth (cm)	110	,	
Sessile Benthos	% Cover				Sessile Benthos	% Cove	[]	
Sediment- (circle all: sand shell mud	19			_	(circle all: sand shell mud	$1/\omega$		
		1			Macroalgae-	ı		
Macroalgae- Fleshy+Calcareous					Fleshy+Calcareous			
Macroalgae- Fleshy+Calcareous Turf- algae+cyanobacteria	 .			-	Fleshy+Calcareous Turf- algae+cyanobacteria	-		
Macroalgae- Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r b)				-	Fieshy+Calcareous Turf- algae+cyanobacteria (circle all: g r b)		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Macroalgae- Fleshy+Calcareous Turf- algae+cyanobacteria	,				Fleshy+Calcareous Turf- algae+cyanobacteria			
Macroalgae- Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r b) Encrusting Red Algae Sponge	,			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r b) Encrusting Red Algae			
Macroalgae- Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r b) Encrusting Red Algae				37	Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r b) Encrusting Red Algae Sponge			
Macroalgae- Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r b) Encrusting Red Algae Sponge Hydroid				3/}	Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r b) Encrusting Red Algae Sponge Hydroid			
Macroalgae- Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r b) Encrusting Red Algae Sponge Hydroid Octocoral				3/3	Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r b) Encrusting Red Algae Sponge Hydroid Octocoral			
Macroalgae- Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r b) Encrusting Red Algae Sponge Hydroid Octocoral Stony Coral				3/8	Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r b) Encrusting Red Algae Sponge Hydroid Octocoral Stony Coral			
Macroalgae- Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r b) Encrusting Red Algae Sponge Hydroid Octocoral Stony Corat Tunicate				3/8	Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r b) Encrusting Red Algae Sponge Hydroid Octocoral Stony Coral Tunicate			

Stony Coral: Genus are accept a part - Genus are accept a part - Section of the condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other-includes: Anemone, Annelid-sessile, Barnacle, Bivatve, Bryozoan, Millepora, sp., Seagrass, Zoanthid.

		4.	
Date	Data Collector	Data Entry	, Paris

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	·		
Max Sediment Depth (cm)	15		
Sessile Benthos	% Cover		
Sediment (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous	·		
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae		(2
Sponge			
Hydroid		4.0,3	
Octocoral	-	$\mathcal{R} \setminus \mathcal{P}_{\mathcal{O}}$	
Stony Coral	, / (
Tunicate			
Bare Hard Substrate			
other			
			11.

Quad Label: Sample Name or#		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos	% Cover		
Sediment- (circle ati; send shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf-algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			- ~
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other			
		• • • •	٠.

TOTAL MILIST - 100%	
	List macroalgae Genus % List every coral colony

% Cover

Ł	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)	
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% co or max _∡e cm)
L7,
·-

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Bare Hard Substrate

Sample Name or #

Max Sediment Depth (cm)
Sessile Benthos...

(circle all: sand shell mud)

Max Relief (cm)

MacroalgaeFleshy+Calcareous
Turf- algae+cyanobacteria
(circle all: g r b)
Encrusting Red Algae

Sponge
Hydroid
Octocoral
Stony Coral
Tunicate

other-..

Total Must = 100%

Macrosigae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasva, Dasvoladus, Grac, Hali, Hypn, Sara, Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex..., except Pseudopterogorgia=Pspt, Plexauretia=Plia, Pseudoptexeura=Pspt Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int, Coral condition; W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other-includes: Anemone, Annelid-sessile, Barnacle, Biyalve, Bryozoan, Millepore, sp., Seagrass, Zoanthid.

Project Name	N	(८	SPS (1)	Site Nam	e /	Transect Name	1	ا ذ	l <u>C</u>	
Date S	- 30	- () 6	Data Col	lec	tor <u>CAB</u>			Data Entry	, Charles
Quad Label: Sample Name or #	1.5	List	every coral colony	% cover or max size (cm)		Quad Label:	5	l	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size
Max Relief (cm)	0					Max Relief (cm)	0			٨.
Max Sediment Depth (cm)	19					Max Sediment Depth (cm)	10	>		
Sessile Benthos	% Cover					Sessile Benthos	<u>% C</u>	<u>ver</u>		
Sediment- (circle all: sand shell mud) Macroalgae-	100					Sediment (circle sti: sand shell mud) Macrosigae	10	α		
Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r b)			·			Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae		-			4	Encrusting Red Algae	_			
Sponge	-	╂┈			M	Sponge		\vdash		
Hydroid	1	1			1	Hydroid	_	<u> </u>		
Octocoral	1	+			-	Octocoral	_			
Stony Coral		-	-h		-	Stony Coral	-			ļ
Tunicate	1				-	Tunicate	_	igg		
Bare Hard Substrate	1	_	Marine Marine			Bare Hard Substrate	<u> </u> _	1		
other		_	· · · · · · · · · · · · · · · · · · ·		1	other	_	1		
• • •					_	* * *			<u></u>	
Total Mu	ıst = 100%			10	_	Total Mus	t = 10	0%	It intercentage Comme	% % d
Quad Label: Sample Name or#	125	Li	st macroalgae Genus % ist every coral colony and coral condition(s)	% cover or max size (cm)		Quad Label: Sample Name or #			List macroalgae Genus (List every coral colony -and coral condition(s)	or max s
Max Relief (cm)	0					Max Relief (cm)				
Max Sediment Depth (cm	112				1	Max Sediment Depth (cm)	<u> </u>			
Sessile Benthos	% Cove	<u> </u>		1		Sessile Benthos	<u>%</u>	Cover		
Sediment (circle all sand shell mu	00100					Sediment- (circle all: sand shell mud	<u> </u>			
Macroalgae- Fleshy+Calcareous					╛	Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteri (circle all: g r b)						Turi- algae+cyanobacteria (circle all: g r b)	_			
Encrusting Red Algae						Encrusting Red Algae	_			<u> </u>
Sponge		_	1	1.00		Sponge	\perp			
Hydroid				1619		Hydroid	\perp			
Octocoral		Ц	F.Z 1/12	2147	╛	Octocoral	_			
Stony Coral						Stony Coral		_		
Tunicate)1/ \{	到	1 3 M & 3 M	363		Tunicate	_			<u>.</u>
Bare Hard Substrate			MNNM	PIJ		Bare Hard Substrate	\perp			
other	그	14	the Octocor	NOS	` >	other				
Total N	lust = 100%	6				Total M	ust = 1	100%		

Standard Abbreviations: and abbreviation formats Macroelgee: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothampion, Caul, Codi, Dasva, Dasvciadus, Grac, Hali, Hyon, Sarg., Octocoral: Genus of each colony = Genu: Gorg, Lept, Plax... except Pseudopterogorgia=Pspt, Ptexeurelle=Plia, Pseudoptexaura=Pspt Stony Coral: Genus apacies of each colony = G spe; A cer, A aga, C nat, M ann, M cay, P ame, O dif, S rad, S sid, S bou, S hya, S in Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other-includes: Anemone, Annelid-sessile, Barnacle, Biyelye, Bryozoan, Millepora, sp., Seagrass, Zoanthid.

Date			Data Col		tor	C	Data Entry			
Quad Label: C),			% cover or max size (cm)		Quad Label:	5	ļL		% cover or max size (cm)
Max Relief (cm)						Max Relief (cm)	0			,
Max Sediment Depth (cm)	1					Max Sediment Depth (cm)	14	_		
Sessile Benthos	% Cov	/er					% Cov	er		
Sediment- (circle all: sand shell mud)	10	Ü				Sediment (circle all: sand shell mud)	101	2		1011111
Macroalgae- Fleshy+Calcareous	1					Macroalgae- Fleshy+Calcareous		_		
Turf- algae+cyanobacteria (circle all: g r b)					1	Turf-algae+cyanobacteria (circle ali: g r b)	\bot			
Encrusting Red Algae					2	Encrusting Red Algae				
Sponge					<u>ښ</u>	Sponge			***************************************	
Hydroid				-		Hydroid	1	_	are and the second seco	
Octocoral	$\downarrow \downarrow$				-	Octocoral			attiran and a second	
Stony Coral	-				-	Stony Corel	-		**************************************	
Tunicate	-				-	Tunicate	-		WALES THE PARTY OF	<u> </u>
Bare Hard Substrate		-			-	Bare Hard Substrate	+	_	White state of the	
other	<u> </u>	-			-	other	1			
Total Mu	et = 100	196		11.	J	Total Mus	- t = 100	%		<u>'.</u>
Quad Label: Sample Name or #		<u>.</u> S	List macroalgae Genus 9 List every coral colony ~and coral condition(s)	% cover or max size (cm)	1	Quad Label: Sample Name or #			List macroalgae Genus % List every coral colony ~and coral condition(s)	or ma. (cm)
Max Relief (cm)	()				Max Relief (cm)	(1)			
Max Sediment Depth (cm)						Max Sediment Depth (cm)		3		
Sessile Benthos	<u>% C</u>	over				Sessile Benthos	% C	ver		
Sediment (circle all sand shell muc	n La) <i>(</i>)				Sediment- (circle all: sand shell mud)	10	Ô		
Macroalgae- Fleshy+Calcareous		1	<u> </u>			Macroalgae- Fleshy+Calcareous	\			
Turf- algae+cyanobacteria (circle all: g r b)	1	1.				Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae						Encrusting Red Algae				
Sponge		1				Sponge	$\perp \downarrow$			
Hydroid		1			_[`	Hydroid	11			
Octocoral		\downarrow			_[Octocoral	11			<u> </u>
Stony Corel		1			_	Stony Coral	11			
Tunicate	_				_	Tunicate	4			
Bare Hard Substrate				-		Bare Hard Substrate	11			
other	-				4	other				
							1 (1	

Standard Abbreviations: and abbreviation formats

Total Must = 100%
lations:
formats

Macrosigne: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryotharmion, Caul. Codi. Dasve. Desveladus, Grac. Hali. Hypn. Sarg...

Octocorat: Genus of each colony = Genu: Gorg. Lept. Plex... except Pseudopterogorgia=Pspl, Plexaurella=Pila. Pseudoptexaura=Pspl
Stony Coral: Genus species of each colony = G spe; A cer. A egg. C nat. M ann. M cev. P ame. O dif. S rad. S sid. S bou. S hya. S int.

Coral condition; W=white disease(s). Q=other disease(s). B=bleaching. Coral Stress Index # 0 1 2 3
Other- includes: Anemone. Annelid-sessile. Barnacle. Biyalve, Bryozoan. Millepore sp., Seagrass, Zoanthid.

6	box crub								
Pro	oject Name	N.	Topsail	Site Nam	ne/	Transect Name	T	512	
Da			0.00	Data Col			PR	Data Entry	
	iad Label:	7.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)		Quad Label:	دائ	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max	Relief (cm)	0				Max Relief (cm)	\bigcirc	Page 1	
Max	Sediment Depth (cm)	M				Max Sediment Depth (cm)	1 1		
Ses	sile Benthos	% Cover				Sessile Benthos	% Cover		
(circ	iment- le all: sand shell mud)	100				Sediment- (circle/all: sand shell mud)	<u>:</u> 00		
	croalgae- chy+Calcareous					Macroalgae Fleshy+Calcareous			
Turi	- algae+cyanobacteria de all: g r b)					Turf-algae+cyanobacteria (circle all: g r b)			
Enc	rusting Red Algae	1				Encrusting Red Algae			
Spo	onge				308	Sponge			
Hyd	Iroid					Hydroid	14		
Oct	ocoral					Octocoral			
Sto	ny Coral		-			Stony Coral	1-1-		ļ
Tur	nicate					Tunicate			
Bar	re Hard Substrate			-	1	Bare Hard Substrate			ļ
oth	er	1		<u> </u>		other	1		
						``	1		
_	Total Mus	st = 100%			_	Total Mu	st = 100%		
	uad Label: mple Name or#	12.5	List macroalgae Genus 9 List every coral colony ~and corat condition(s)	% Cover or max size (cm)		Quad Label: Sample Name or #	40	List macroalgae Genus 9 List every coral colony -and coral condition(s)	6 % cc or max siz (cm)
	x Relief (cm)	0				Max Relief (cm)	0		
Ma	x Sediment Depth (cm)	9				Max Sediment Depth (cm)			
Se	ssile Benthos	% Cove]	Sessile Benthos	% Cov	er	
(ci	diment- rcle all sand shell mud	100				Sediment- (circle all: sand shell muc	, 1 X)	
	eshy+Calcareous					Macroalgae- Fleshy+Calcareous			
Tu	rf- algae+cyanobacteria rcle all: g_r b)					Turf- algae+cyanobacteria (circle all: g r b)			
En	crusting Red Algae					Encrusting Red Algae			,
Sp	onge	1-				Sponge			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Hydroid

Octocoral

Stony Coral

Bare Hard Substrate

Tunicate

other-..

Total Must = 100%

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasva, Dasvoladus, Grac, Hali, Hypn, Sarg., Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex., except Pseudopterogorgia=Pspt, Plexaurella=Plia, Pseudoptexaura=Psp Stony Coral: Genus species of each colony = G spe: A cer, A ags, C nat, M ann, M cay, P ame, O dif, S rad, S sid, S bou, S hya, S inl Coral condition: W=white disease(s), O=other disease(s), B=bleachino, Coral Stress Index # 0 1 2 3

Other-Includes: Anemone, Annelid-sessile, Barnacle, Biyalve, Bryozoan, Millepora, sp., Seagrass, Zoanthid,

Bare Hard Substrate

○ Hydroid

Octocoral

Stony Coral

Tunicate

other-..

M

Date			Data Col	lec	tor			Data Entry	" Printer
Quad Label: Sample Name or #	37.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)		Quad Label: 3	5	1	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	\bigcirc				Max Relief (cm)	(0		
Max Sediment Depth (cm)	11				Max Sediment Depth (cm)		12		
Sessile Benthos	% Cover				Sessile Benthos	<u>%</u> (over		
Sediment (circle all sand shell mud) Macroalgee- Fleshy+Calcareous	100				Sediment- (circle all: sand shell mud) Macrosigae- Fleshy+Calcareous	((∞		
Turf- algae+cyanobacteria (circle all: g r b)				1	Turf-algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				ત	Encrusting Red Algae			•	
Sponge	-		<u> </u>	3	Sponge	-/			
Hydroid				ł	Hydroid	+			<u> </u>
Octocoral				1	Octocoral	17			
Stony Coral				-	Stony Coral	+			ļ
Tunicate				-	Tunicate	Н			<u> </u>
Bare Hard Substrate				1	Bare Hard Substrate	_			ļ
other	-				other	L	1		
						<u> </u>	1		<u> </u>
Total Mus			110/	,	Total Mus				
Quad Label: 3	2.5	List macroalgae Genus ? List every coral colony -and coral condition(s)	or max size (cm)		Quad Label: Sample Name or#	30		List macroalgae Genus 9 List every coral colony -and coral condition(s)	or maxe (cm)
Max Relief (cm)]	Max Relief (cm)	(0		
Max Sediment Depth (cm)	11				Max Sediment Depth (cm)		$\langle \mathcal{A} \rangle$		
Sessile Benthos	% Cove				Sessile Benthos		Cover		
Sediment- (circle all: sand shell mud)	101				Sediment- (circle all: sand shell mud)	1/0	ÖC		
Macroalgae- Fleshy+Calcareous	-,				Macroalgae- Fleshy+Calcareous		\		
Turf- algas+cyanobacteria (circle ali: g r b)	\ '				Turf- algae+cyanobacteria (cîrcle all: g r b)				
Encrusting Red Algae	\				Encrusting Red Algae				•
Sponge	1			_[?	<u>sponge</u>	_		. ,	
Hydroid				٦^	Hydroid	┸	\perp		£
Octocoral				4	Octocoral .	-	-		<u> </u>
Stony Corel	1 - 1			4	Stony Coral	+	-		
Tunicate					Tunicate	\perp	1		
Bare Hard Substrate	11				Bare Hard Substrate				
other					other	\perp			
Total Mu	st = 100%			_	Total Mu	ist =	100%		

Standard Abbreviations: and abbreviation formats Macroelgee: Pool to Genus = Genu or Genus: Avra, Bryopeis, Bryothamnion, Caul, Codi, Dasva, Dasveladus, Grac, Hali, Hyon, Serg....

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... excent Pseudopteroprople=Pspt, Plexaurelle=Pile, Pseudoptexaure=Pspt
Stony Coral: Genus species of each colony = G spe; A cer, A age, C nat, M ann, M cay, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleeching, Coral Stress Index # 0 1 2 3
Other-includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepore, ap., Seagrass, Zoanthid.

Date	101	211111		e / Transect Name	150	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	402
Date	101	21103	Data Coll	ector	1-17		-
Quad Label: Sample Name or #	* 0	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)	Quad Label: Sample Name or #	.5	List macmalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)				Max Relief (cm)	0		
Max Sediment Depth (cm)				Max Sediment Depth (cm)	12		
Sessile Benthos	% Cover			Sessile Benthos	% Cover		
Sediment- circle all: sand shell mud)				Sediment- (circle all: sand shell (mud)	100	,	
Macroalgae- Fleshy+Calcareous				Macroalgae Fleshy+Calcareous			
Furf-algae+cyanobacteria circle aft: g r b)				Turf-algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae				Encrusting Red Algae			<u> </u>
Sponge			-	Sponge			<u> </u>
flydroid				Hydroid			<u> </u>
Octocoral				Octocoral			<u> </u>
Stony Coral				Stony Coral			<u> </u>
Tunicate				Tunicate			<u> </u>
Bare Hard Substrate				Bare Hard Substrate			
other		·	<u> </u>	other	l 		
Total Must	= .100%		-	TotalMusi	t = 100%		
Quad Label: *	6	List macroalgae Genus 9 List every coral colony -and coral condition(s)	% cover or max size (cm)	Quad Label: F	1,5	List macroalgae Genus % List every coral cotony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5			Max Relief (cm)	15		
Max Sediment Depth (cm)				Max Sediment Depth (cm)	0		
Sessile Benthos	% Cover			Sessile Benthos	% Cover		***************************************
Sediment- (circle all: sand shell mud)				Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous				Macroalgae- Fleshy+Calcareous	0		
Turf-algae+cyanobacteria (circle all: g r b)				Turf- algae+cyangbacteria (circle all: (g (r) h)	1		
	1		1				1

Sponge Hydroid Octocoral Stony Coral **Tunicate** Bare Hard Substrate other-

Sponge Hydroid 0 Octoporal Oculina ras 21 x8 Stony Coral 0 Tunicate 85 Bare Hard Substrate 2

Total Must = 100%

tandard Abbreviations; and abbreviation formats

Total Must = 100% Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg... Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Ptla, Pseudoptexaura=Pspt Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int... Coral condition; W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other-includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepura sp., Mollusca-sessile, Seagrass, Zoanthid

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Date

Data Collector

112 - 13		List macroalgae Genus %	4 00105
Quad Label:			
_	$\hat{\Gamma}$	List every coral colony	or max size
Sample Name or #	J. V.	-and coral condition(s)	(cm)
	12	5 1 0	1
Max Relief (cm)		Dichi of	, }
	7.	10.10	
Max Sediment Depth (cm)	()	,	
		-	
Sessile Benthos	% Cover		
Sediment-	7		
(circle all: sand shell mud)	U,		
Macroalgae-	1		
Fleshy+Calcareous			
Turf- algaet cyanobacteria	1		
(circle all: (g) (i) (b))			
Encrusting Red Algae	\cap		
	1		
Sponge	٠.,	ł	
opolige			
Mudmid		Oakling-10	L /1 /3
Hydroid	- × -	JULIUNIA TO	7 4 50
0.4			Ī
Octocoral			<u> </u>
	<i>t</i> ₀ ·		
Stony Coral			
	1		1
Tunicate			
	(11)	'	ļ
Bare Hard Substrate	111		
other (3/V 0			
865, 400	i grafic pr		
Total Musi			

Quad Label: Sample Name or #	2.5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	Ö		
Max Sediment Depth (cm)	4	·	
Sessile Benthos	% Cover		,
Sediment- (circle all: sand shell (mud)	100		
Macroalgee Fleshy+Calcareous			
Turf-algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			,
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other			ļ

Quad Label:)	List macroalgae Genus % List every corat colony ~and corat condition(s)	% cover or max size (cm)
Max Relief (cm)	7		
Max Sediment Depth (cm)	0		
Sessile Benthos	% Cover		
Sediment- (circle all: sand_shell_mud)	0		
Macroalgae- Fleshy+Calcareous	0		
Turf-algae+cyanobacteria (circle att: g (7 b)			
Encrusting Red Algae	()		
Sponge	0		
Hydroid	.		
Octocoral	0		
Stony Coral	B		
Tunicate	G \	Garline ron	lanxs
Bare Hard Substrate	Prid		
other (MW)	5		

·	10070		
Quad Label: Sample Name or #	1.5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	9		
Max Sediment Depth (cm)	1		
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)	85		
Macroalgae Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocorat			
Stony Coral			7
Tunicate		Oalline rob	Icm du
Bare Hard Substrate	-7		<u> </u>
other-,			
			1

Total Must = 100%

Total Must = 100%

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg....
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Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0_1_2_3

Date

Data Collector

		1 i-4	
Quad Label: / Sample Name or #	20	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1		
Max Sediment Depth (cm)	8	,	
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell inud)	80		·
Macroalgae- Fleshy+Calcareous			
Turf-algaet cyanobacteria (circle all: g r b)	•		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	Ú		
Bare Hard Substrate	19		
other			

Quad Label: V	225	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	3		
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mult)	73		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle alt: g) (b)			
Encrusting Red Algae	Ò		
Sponge	Ŋ		
Hydroid	Ô_		
Octocoral	0		
Stony Coral	0		<u> </u>
Tunicate	0		
Bare Hard Substrate	25		
other MMITI d	2		

Total Must = 100%

Total Must	= 1	100%

Quad Label: Sample Name or #		 % cover or max size (cm)
Max Relief (cm)		
Max Sediment Depth (cm)		
Sessile Benthos	% Cover	
Sediment- (circle all: sand shell mud)		
Macroalgae- Fleshy+Calcareous		
Turf-algae+cyanobacteria (circle all: g r b)		
Encrusting Red Algae		
Sponge		
Hydroid		
Octocoral		
Stony Coral		
Tunicate		 <u> </u>
Bare Hard Substrate	ļ	 <u> </u>
other	ļ	
		1

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			<u></u>
Encrusting Red Algae .			
Sponge			
Hydroid			
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Stony Coral	ļ		<u>-</u>
Tunicate			1
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other			<u> </u>

Total Must = 100%

tandard Abbreviations: and abbreviation formats

Total Must = 100%

Macroalgae: Pool to Genus = Genu or Genus: Avra Bryopsis Bryothamnion, Caut, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg....

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoptexaura=Pspt

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

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. Pr	oject	Name

Data Collector

Quad Label:	25	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10	:	
Max Sediment Depth (cm)	(3)		
Sessile Benthos	% Cover		
Sediment- (circle all: sand) shell mud)	9	1	-
Macroalgae- Fleshy+Calcareous			
Turf-algae+cyanobacteria (circle all: g / r) b /)			
Encrusting Red Algae	The same of		1
Sponge		:	
Hydroid	\mathcal{Q}		
Octocoral			
Stony Coral	·		
Tunicate			
Bare Hard Substrate	・ドイ		
other 以 光 () () () () () () () () () ((3)		

Quad Label: (List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6	(?)	
Max Sediment Depth (cm)	\bigcirc	Dictyota	1
Sessile Benthos	% Cover	V	
Sediment- (circle aff; sand shell mud)			
Macroalgae- Fleshy+Calcareous)		
Turf-algae+cyanobacteria (circle aff: (g (r)b)	20		
Encrusting Red Algae			
Sponge)		
Hydroid	0	٠.	-
Octocorat	0		
Stony Coral)	Duillasprato	
Tunicate	2		
Bare Hard Substrate	48		
otherNOVTM	25		
6010200M			

List macroalgae Genus % % cover Quad Label: List every coral colony Sample Name or # -and coral condition(s)

or max size

(cm)

List macroalgae Genus % % cover

Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos... % Cover Sediment-(circle all: sand shell mud) Macroalgae-Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r b) Encrusting Red Algae Sponge Hydroid Octocoral 1 Stony Coral Tunicate **Bare Hard Substrate** other-

		l	:
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos	% Cover		
Sediment- (circle all; sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle alf: g r b)		•	<u></u>
Encrusting Red Algae			
Sponge			
Hydroid			
Octocorat			
Stony Coral			<u> </u>
Tunicate	200		ļ
Bare Hard Substrate			<u> </u>
other: DTVO			

Total Must = 100%

Total Must = 100%

Total Must = 100%

tandard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Ayra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg... Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Pila, Pseudoptexaura=Pspt Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int... Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Quad Label:	1.5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6		
Max Sediment Depth (cm)	4	. '	,
Sessile Benthos	% Cover	!	
Sediments: (circle all, sand Shell mud)	75		
Macroalgae- Fleshy+Calcareous	0		
Turf-algae#cyanobacteria (circle att: (g/r(b))	2:		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	O		
Tunicate	0		,
Bare Hard Substrate	3		/
other WOTTT	20		
Total Mus	f = 100%		

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	4		
Max Sediment Depth (cm)	3		/
Sessile Benthos	% Cover	<u>:</u>	
Sediment-\ (circle all: sand shell mud)	95		,
Macroalgae Fleshy+Calcareous	\bigcirc	·	
Turf-algae+cyanobacteria (Circle alt: /g /r (b))			
Encrusting Red Algae	\bigcirc		
Sponge	0		
Hydroid	0		
Octocoral	\bigcirc		
Stony Coral	0	· ·	
Tunicale	0	5.	
Bare Hard Substrate	2		
otherWOrm	2		
Total Mus	t = 100%·	1	-

Quad Label: 3	25	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	12		
Max Sediment Depth (cm)	3		
Sessile Benthos	% Cover	·	
Sediment- (circle all/sand) shell mud)	45		design.
Macroalgae- Fleshy+Calcareous	0		
Turf-algae+cyandbacteria (circle all g) (r b)	2		
Encrusting Red Algae	0		in .
Sponge	0		
Hydroid	Ô		
Octocoral_	0		
Stony Coral	0		
Tunicate	\bigcirc		
Bare Hard Substrate	23		
other OVV	30		
		,	

Quad Label: 2	0	List macroalgae Genus % List every coral colony and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6		
Max Sediment Depth (cm)	2		
Sessile Benthos	% Cover		
Sediment (circle all: sand shell mud)	85		THERETON ()
Macroalgae Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: (g) (b))	2		
Encrusting Red Algae	2	Dalma Tobus	2
Sporige	0		
Hydroid	0		
Octocoral	0		
Storry Coral	}		
Tunicate	\bigcirc		
Bare Hard Substrate			
other WOTM	3		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Total Must = 100%

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoptexaura=Pspt

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Total Must = 100%

Total Must = 100%

tandard Abbreviations: .nd abbreviation formats

Bare Hard Substrate

Stony Coral

Tunicate

other-.

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg....

Octocoral: Genus of each colony = Genu; Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Ptla, Pseudoptexaura=Pspt

Stony Coral: Genus species of each colony = G spe; A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), Q=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Bare Hard Substrate

Other-includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Stony Coral

Tunicate

	Project	Name	1
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Date

Site Name / Transect Name

•	
I lata	Collector
vala	Collector

Quad Label:	7.5	List macroalgae Genus % % nover List every coral colony or max si ~and coral condition(s) (cm)	
Max Relief (cm)	7		
Max Sediment Depth (cm)			
Sessile Benthos	% Cover		
Sediment (circle all sand shell mud)	3	1	
Macroalgae- Fleshy+Calcareous	0		
Turf-algae+cyanobacteria (circle aff: g (r) b)	1		
Encrusting Red Algae	0		
Sponge	1		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0_		
Bare Hard Substrate	15		
other			

Quad Label: 5	5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)		Dictyota	
Max Sediment Depth (cm)	2		
Sessile Benthos	% Cover		
Sediment- (circle all sand) shell mud)	10		
Macroalgae Fleshy+Calcareous	.}		
Turf-algae+cyanobacteria (circle alt: g r b)	2		
Encrusting Red Algae	0_		
Sponge	1		4
Hydroid	0	O, vobusiax	(
Octocoral	0		
Stony Coral	5 /		
Tunicate	0		
Bare Hard Substrate	83		
other NOT M	2		
,			

Total	Muest	z	1003	ć

Quad Label: 5	25		% cover or max size (cm)
Max Relief (cm)	8	į	
Max Sediment Depth (cm)	5	,	
Sessile Benthos	% Cover		
Sediment (circle all: sand shell mud)	3	: :	
Macroalgae- Fleshy+Calcareous	\bigcirc		
Turf- algae+cyanobacteria (circle all: (g) (r ()b))	10	O robusta	0
Encrusting Red Algae	0	,	
Sponge	2		
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	84		
other			
Standard Abbreviations: and abbreviation formats	Macroalq Octocora Stony Co	ae: Pool to Genus = Genus Genus of each colony = C ral: Genus species of each dition: W=white disease(s) dudes: Anemone, Annetid	colony = G s O=other dis
3	- Address of the same	1 Sept 1	

Quad Label: Tample Name or #	50	List macroalgae Genus % List every coral colony -and coral condition(s)	or max size	
Max Renef (cm)	2			
Max Sediment Depth (cm)	3			
Sessile Benthos	% Cover	i		
Sediment. circle all; sand shell mud)	91		(/) ()	
Macroalgae Fleshy+Calcareous	\bigcirc	·	, 5	
Turf-algae+cyanobacteria (circle alt; g r b)	2		. 3	
Encrusting Red Algae	\bigcirc		2	
Sponge	1.		1,7	
Hydroid	0			
Octocoral	D			
Stony Coral	()	`		
Tunicate	0			
Bare Hard Substrate	5		0	
other-171/17291/	1		3	
(3)		-,	0	

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarq... Octocoral, Genus of each colony = Genu: Gorq, Lept, Plex... except Pseudopterogorgia=Pspt, Ptexaurella=Ptla, Pseudoptexaura=Pspt Stony Coral: Genus species of each colony = G spe: A cer, A aga, C.nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int

Total Must = 100%

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other-includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Milepora sp., Moltusca-sessile, Seagrass,

Project Name N	Torra	1 Ruuch	Sita Nam	e / Transect Name		TSG	
Date	10/21		Data Col			20	
	1					145	
Quad Label: Sample Name or #) .	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)	Quad Label: Sample Name or #	5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0			Max Relief (cm)	0		
Max Sediment Depth (cm)				Max Sediment Depth (cm)	10		9
Sessile Benthos	% Cover			Sessile Benthos	% Cover		
Sediment- (circle all, sand, shell, mud)	160			Sediment- (circle all sand shell mud)	100		
Macroalgae- Fleshy+Calcareous				Macroalgae- Fleshy+Calcareous			
Turf-algae+cyanobacteria (circle all: g r b)			111111111111111111111111111111111111111	Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			-	Encrusting Red Algae			
Sponge			***************************************	Sponge			
Hydroid				Hydroid			ļ
Octocorat		· · · · · · · · · · · · · · · · · · ·	-	Octocoral			
Stony Coral				Stony Coral			
Tunicate			-	Tunicate	1		
Bare Hard Substrate				Bare Hard Substrate	alle		
other			The state of the s	other			
Total Musi	t = 100%		Disperien	Total Mus	1 100%		and political and
		List macroalgae Genus %	% cover			List macroalgae Genus %	19/ 000000
Quad Label:	5	List every coral colony and coral condition(s)	or max size (cm)	Quad Label: 7	5	List every coral colony -and coral condition(s)	or max size (cm)
Max Relief (cm)	25			Max Retief (cm)	6		
Max Sediment Depth (cm)	5			Max Sediment Depth (cm)	7		
Sessile Benthos	% Cover			Sessile Benthos	% Cove		
Sediment- (circle all sand shell mud)	80			Sediment- (circle all: sand shell mud)	90		

Quad Label:	5	List every coral colony -and coral condition(s)	or max size (cm)
Max Relief (cm)	25		
Max Sediment Depth (cm)	5		
Sessile Benthos	% Cover		-
Sediment- (circle all sand shell mud)	80		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (ciride all: g r b)	Ō		
Encrusting Red Algae	\bigcup	*	
Sponge	0)	
Hydroid	0	*	
Octocorat	0		
Stony Coral	6		
Tunicate	15		
Bare Hard Substrate	20		
other	0		4

Quad Label:	5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6		
Max Sediment Depth (cm)	\bar{\bar{\bar{\bar{\bar{\bar{\bar{		
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)	90		
Macroalgae Fleshy+Calcareous			
Turf-algae+cyanobácteria (circle all: g r (b)	5	·	
Encrusting Red Algae .			
Sponge			
Hydroid			***************************************
Octocorat			-
Storny Coral	<u> </u>		ļ
Tunicate			
Bare Hard Substrate	5		
other	<u> </u>		

Total Must = 100%

tandard Abbreviations: und abbreviation formats

t = 100%

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Ptexaurella=Plla, Pseudoptexaura=Pspt

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Project Name	N	Topsail	Beach
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Date /0/21/05

Data Collector

Quad Label:		List macroalgae Genus % List every coral colony	% cover or max size
Sample Name or #		~and coral condition(s)	(cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos	% Cover		
Sediment- (circle all: sand)shell mud)	9)		
Macroalgae Fleshy+Calcareous			
Turf-algae+cyanobacteria (circle aff: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid		·	
Octocoral			-
Stony Coral			
Tunicate		·	
Bare Hard Substrate	3_		
other			

Quad Label: Sample Name or #	2.5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	20		
Max Sediment Depth (cm)	5		
Sessile Benthos	% Cover	5	
Sediment- (circle all sand shell mud)	9		
Macroalgae Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r (b))	IÙ		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral		institution (
Stony Coral		na vidige	
Tunicale		:	
Bare Hard Substrate	84		G
other			

Total	Muist	=	100%

Total Must =	100%
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Quad Label: \Sample Name or #		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	25	eles mentes	
Max Sediment Depth (cm)	2		
Sessile Benthos	% Cover	2	
Sediment- (circle all: sand shell mud)	3	7 - 27 - Jan 64	2.5 4.4
Macroalgae- Fleshy Calcareous			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Turf- algae+cyanobacteria (circle all: g r (b))	5	-	
Encrusting Red Algae			<u> </u>
Sponge			
Hydroid			
Octocoral			<u> </u>
Stony Coral			
Tunicate	7 4		
Bare Hard Substrate	172	: : : 	<u> </u>
other	ļ		ļ

Quad Label:		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)	
Max Relief (cm)	20	-		
Max Sediment Depth (cm)	2	.:	. to 21	
Sessile Benthos	% Cover		the second second	
Sediment- (circle all sand shell mud)	30	ann control de		
Macroalgae Fleshy (Calcareous		1		
Turf-algae+cyanobacteria (circle all: g r (b)	IV			
Encrusting Red Algae				
Sponge.		·		
Hydroid.			<u> </u>	
Octocoral				
Stony Coral	ļ		<u> </u>	
Turicale		· · · · · · · · · · · · · · · · · · ·	<u> </u>	
Bare Hard Substrate	59			
other 3/102)			

Total Must = 100%

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothammion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarq...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Pita, Pseudoptexaura=Pspt
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C riat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition; W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Date N Topsail Beach

Data Collector

2B

Quad Label: Sample Name or #	Quad Label:		% oover or max size (cm)
Max Relief (cm)	13		
Max Sediment Depth (cm)	6		
Sessile Benthos	% Cover	:	
Sediment- (circle all: sand shell mud)	95		
Macroalgae- Fleshy+Calcareous	*		
Turf-algae+cyanobacteria (circle all: g r (b))			
Encrusting Red Algae			·.
Sponge			3
Hydroid		- <u>-</u>	
Octocoral			
Stony Coral		: 	
Tunicate			:
Bare Hard Substrate			
other Seswam	3		
Total Must	=.100%		

Quad Label: Sample Name or #	2.5	Ust macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	.6		
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)	100	en res	-
Macroalgae- Fleshy+Calcareous			
Turf-algae+cyanobacteria (circle all: g r b)		. 1	
Encrusting Red Algae		:	3
Sponge			
Hydroid		į.	
Octocoral		·	
Stony Coral			
Tunicale		:	
Bare Hard Substrate			
other			

Total Must = 100%

		List macroalgae Genus List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	15	\$ 1 m	1 - 15
Max Sediment Depth (cm)	4	:	
Sessile Benthos	% Cover	;	
Sediment- (circle all: serid shell mud)	15	organia -	
Macroalgae- Fleshy+Calcareous		;	
Turf-algae+cyanobacteria (circle all: g r /b)	54		* * * * * * * * * * * * * * * * * * *
Encrusting Red Algae			
Sponge			1 2 - 1 4.
Hydroid	5		
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	5		
other. Ses with	20		1
1			

			1.1	
Quad Label:		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)	
Max Relief (cm)	IV.	Dev mast		
Max Sediment Depth (cm)	2	robusi		
Sessile Benthos	% Cover	,		
Sediment (circle all: sand shell mud)	25	3		
Macroalgae- Fleshy+Calcareous				
Turf-algae+cyanobacteria (circle all: g r (b))	30			
Encrusting Red Algae .				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicale		<u>:</u>	-	
Bare Hard Substrate	39			
otherDes www.	5			

tandard Abbreviations: and abbreviation formats

Total Must = 100%

Macroalgae: Pool to Genus = Genu or Genus: Avra Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Ptla, Pseudoptexaura=Pspt

Stony Coral: Genus species of each colony = G spe; A cer, A aga, C nat, M ann, M cay; P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Quad Label: 30		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	<u> </u>		
Max Sediment Depth (cm)	4		
Sessile Benthos	% Cover		
Sediment- (circle all: sand) shell mud)	35		
Macroalgae Fleshy+Calcareous			
Turf-algae+cyanobacteria (circle all: g r (b))	30		
Encrusting Red Algae			
Sponge	1	_	
Hydroid	3		3
Octocoral		" N.J	:
Stony Coral			1
Tunicate			1 6
Bare Hard Substrate	30	·	<u> </u>
other Ses wh	10		

Quad Label: 30,5		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	20		
Max Sediment Depth (cm)	<u> ک</u>		
Sessile Benthos	% Cover		
Sediment- (circle all: sand)shell mud)	75		
Macroalgae Fleshy+Calcareous			
Turf-algae+cyanobacteria (circle alt. g r (b/)	5		***************************************
Encrusting Red Algae			
(Sponge	3		
Hydroid	1		
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	114		
other-JESWIM	2		

		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max si (cm)	
Max Relief (cm)	1,0			
Max Sediment Depth (cm)	5			
Sessile Benthos	% Cover			
Sediment-	as	,		

Sample Name of #		~and coral condition(s)	(Cm)
Max Relief (cm)		telesto	
Max Sediment Depth (cm)	O.		
Sessile Benthos	% Cover		- Properties
Sediment- (circle all: sand_shell_mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r (b))	85		
Encrusting Red Algae			
Sponge	4		
Hydroid	,		
Ortocoral)		

List macroalgae Genus % % cover

or max size

List every coral colony

Total Must = 100%

Quad Label: 💍

(circle all: sand_shell/mud)

Macroalgae
Fleshy+Calcareous

Turf- algae+cyanobacteria
(circle all: g (b))

Encrusting Red Algae

Sponge

Hydroid

Octocoral

Stony Coral

Tunicate

Bare Hard Substrate

Total Must = 100%

Total Must = 100%

Standard Abbreviations: and abbreviation formats

other-..

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarq., Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoptexaura=Pspt Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int... Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Bare Hard Substrate

Other-includes Anemone Annelid sessile, Barnacle, Bryozoan, Millepora sp., Mollusca sessile, Seagrass, Zoanthid.

Stony Coral

Tunicate

0-4-	- :	/
Date	1977	103

Data Collector

List macroalgae Genus % % cover			
Quad Label: 100		List every coral colony	or max size
Quad Label:		~and coral condition(s)	(cm)
Sample realite of #	····	-and condition (S)	(Cit)
Max Relief (cm)	<u>, , , , , , , , , , , , , , , , , , , </u>		
	7		1
Max Sediment Depth (cm)			<u> </u>
Sessile Benthos	% Cover		
2622116 Deurio2	N COVE		
Sediment-	1		
(circle all: sand shell mud)	15		1
Macroalgae-		, ,	
Fleshy+Calcareous			
Turf-algae+cyanobacteria			1
(circle all: g r /b))	0	. \	1
3	- Y		<u> </u>
Encrusting Red Algae	ŀ		1
Character 1 ages		-	
Seana			1
Sponge			
11.414	, ;		
Hydroid			├
Octocoral			<u> </u>
Stony Coral			<u> </u>
Tunicate			<u>l</u>
	1/2		
Bare Hard Substrate	1>		<u> </u>
P	1/5		
other	10		
other PS vwn	1		
12/105	\		
Total Mue	- 1000/	- 700	

Quad Label:	5	-and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	Ocolina sub letu viva	5
Max Sediment Depth (cm)	D	legtu vivy	14
Sessile Benthos	% Cover	Vepto he bes	1
Sediment- (circle all: sand shell mud)	\mathcal{O}_{\perp}		
Macroalgae- Fleshy+Calcareous			
Turf-algae+cyanobacteria (circle all: g r (b))	30		
Encrusting Red Algae			
Sponge	10		
Hydroid			
Octocoral	<u> </u>		
Stony Coral	1		
Tunicate			
Bare Hard Substrate	58		
other			

Total Must = 100%

Quad Label: (15	-and coral condition(s)	or max size
Max Relief (cm)	35(\$ savigor MI \$)5
Max Sediment Depth (cm)	0	180/2 When	10
Sessile Benthos	% Cover	1 : - 1,000	n ngapa d
Sediment- (circle all; sand shell mud)	0		Salvador system
Macroalgae- Fleshy+Calcareous	5	100	
Turf-algae+cyanobacteria (circle all: g r b	15		
Encrusting Red Algae			
Sponge	3		, and
Hydroid			
Octocoral			
Stony Coral			
Tunicate	6		
Bare Hard Substrate	256		
other Byvz.	10+	5	

Quad Label: 7		List macroalgae Genus % List every coral colony > -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	30	Grac)
Max Sediment Depth (cm)	\mathcal{P}		and the state of t
Sessile Benthos	% Cover	Ę	
Sediment- (circle all: sand shell mud)	0	8	
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r 6))	15		
Encrusting Red Algae .	3		
Sponge	,3		
Hydroid	10		
Octocoral			_
Storry Coral			
Tunicate			
Bare Hard Substrate	57	·	1
other Ses van	1		
Sesvan	10		

itandard Abbreviations: and abbreviation formats

Total Must = 100% Total Must = 100% Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg... Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Pila, Pseudoptexaura=Pspt Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int... Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0, 1, 2, 3

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1	Λ	
75	17	

Quad Label: 5	U		% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	3		
Sessile Benthos	% Cover	* :	
Sediment- (circle all: sand shell mud)	W99)	
Macroalgae- Fleshy+Calcareous		:	
Turf-algae+cyanobacteria (circle all; g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral	***		
Stony Coral	1 .		
Tunicate			
Bare Hard Substrate		·	
other			

Quad Label: Sample Name or # 535		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)	
Max Relief (cm)	8	Oculing r.	\	
Max Sediment Depth (cm)	3	O(Wliner		
Sessile Benthos	% Cover	teles Vo	4cm+	
Sediment (circle all: sand shell mud)	40	7:d1	1	
Macroalgae- Fleshy+Calcareous	<i>r</i> †	DIVIVE r.		
Turl-algae+cyanobacteria (circle alt: g r /b)	52	· · · · · · · · · · · · · · · · · · ·		
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral	1			
Tunicate				
Bare Hard Substrate				
other. Ses was	5			

Total Must = 100%

Total Must = 100%

Quad Label: 5	5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	7		
Sessite Benthos	% Cover		1
Sediment- (circle all sand shell mud)	98		16.15.15
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			anno e de la companya
Encrusting Red Algae	ļ <u></u>	4	deland and
Sponge			
Hydroid ,			
Octocoral			
Stony Coral			
Tunicate			:
Bare Hard Substrate			# <u>}</u>
other			
	T		

The state of the s	·		1 01
Quad Label: 5	7.5	List macroatgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	2		
Sessile Benthos	% Cover	•	
Sediment- (circle all: sand) shell mud)	3		
Macroalgae Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			<u> </u>
Encrusting Red Algae			
Sponge			
Hydroid		·.	
Octocoral			ļ
Stony Coral	ļ		ļ
Tunicate			İ
Bare Hard Substrate	7/	-	
other		·	
	1	1	1

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Total Must = 100%

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarq...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Ptla, Pseudoptexaura=Pspt

Stony Coral: Genus species of each colony = G spe... A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other-includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora, sp., Mollusca-sessile, Seagrass, Zoanthid.

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Projec	t Name N. Topsail Beach	Site Name / Transect Nam
Date	10/21/05	Data Collector EH

Quad Label: Sample Name or #	-[0	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	ay as the last		
Max Sediment Depth (cm)			
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous	0		
Turf-algae+cyanobacteria (circle all: g (b))			***************************************
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	(5)		
Stony Coral	· ·		
Tunicate	30		
Bare Hard Substraté	10		
other	08		
4 - 14	:		
Total Must = 100%			

Quad Label:	7,5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			-
Max Sediment Depth (cm)	1		
Sessile Benthos	% Cover		***************************************
Sediment- (circle all: sand_shell_inud)	5		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r (b))	5		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	Õ		
Tunicate	0		
Bare Hard Substrate	80)	
other\(\M\\\)	0 4		
			4

Total Must = 100%

Quad Label: Sample Name or #	15	List macroalgae Genus % % cover List every coral colony or max size and coral condition(s) (cm)
Max Relief (cm)	G.	
Max Sediment Depth (cm)	2	
Sessile Benthos	% Cover	
Sediment (circle all: sand) shell (mud)	OH	
Macroalgae-	0	
Turf-algae+cyanobacteria (circle all: g r (b))	10	ľ
Encrusting Red Algae	0	
Sponge	0	
Hydroid :	0	
Octocoral		
Stony Coral	()	
Tunicate	0	,
Bare Hard Substrate	50	
other RAWA	20	
	T#	

Quad Label: \\ Sample Name or #		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover / or max size (cm)
Max Relief (cm)	1		
Max Sediment Depth (cm)	5		
Sessile Benthos	% Cover		
Sediment- (circle all: sand) shell (mud)	10		
Macroalgae- Fleshy+Calcareous	0		<u></u>
Turf- algae+cyanobasteria (circle all: g r b)	'5		
Encrusting Red Algae .	0		
Sponge			
Hydroid		ć	
Octocoral			
Stony Coral			
Tunicate			ļ
Bare Hard Substrate	10		
other PMH	15		
, , , , , , , , , , , , , , , , , , ,			

Standard Abbreviations: and abbreviation formats

Total Must = 100%

Acroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg, Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex...except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoptexaura=Pspt Stony Coral: Genus species of each colony = G spe. A cer, A aga, C nat, M ann, M cav; P ame. O dif, S rad, S sid, S bou, S hya, S int... Coral condition: W=white disease(s), 0=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Pr	oject	N	an	1e	N.	Topsai	1 Beach	
	_			$\overline{}$				

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D	a	t	е		10	5/	21	10	5

Data Collector

<u> </u>						
Quad Label: Sample Name or #	A T	List macroatgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)			
lax Relief (cm)	0					
Max Sediment Depth (cm)	0					
Sessile Benthos	% Cover					
Sediment- (circle all sand shell mud)	8					
Macroalgae- Fleshy+Calcareous	0					
Turf-algae+cyanobacteria (circle aff: g r /b)						
Encrusting Red Algae	Ö					
Sponge	0					
Hydroid	0					
Octocoral	0					
Stony Coral	0_					
Tunicate	0_					
Bare Hard Substrate	jo					
other						
Total Musi	1000/					

Quad Label: Sample Name or#	2,5	% cover or max size (cm)
Max Relief (cm)	0	
Max Sediment Depth (cm)	2	
Sessile Benthos	% Cover	
Sediment- (circle all: sand shell mud)	94	
Macroalgae Fleshy+Calcareous	0	
Turf-algae+cyanobacteria (circle all: g r (b))	1	
Encrusting Red Algae	0	
Sponge		
Hydroid	0	
Octocoral	0	
Stony Coral		
Tunicate	\Box	
Bare Hard Substrate	5	
other		

List macroalgae Genus % % cover Quad Label: List every coral colony and coral condition(s) ample Name or # (cm) Max Relief (cm) Max Sediment Depth (cm) % Cover Sessile Benthos... Sediment-(circle all: sand) shell (mud) Macroalgae-Fleshy+Calcareous Turf- algae+cyanobacteria (circle aff: g r (b)) Encrusting Red Algae Sponge Hydroid Oculia ob clamas Octocorat Stony Coral 0 Tunicate Bare Hard Substrate other....Sess.ann

Total Must	Total Must = 100%					
Quad Label: Sample Name or #	7.5		% cover or max size (cm)			
Max Relief (cm)	0					
Max Sediment Depth (cm)	9					
Sessile Benthos	% Cover		1			
Sediment- (circle all: sand shell (mud)	100					
Macroalgae Fleshy+Calcareous						
Turf- algae+cyanobacteria (circle all: g f b)			<u>.</u>			
Encrusting Red Algae .						
Sponge						
Hydroid						
Octocoral						
Stony Coral	ļ					
Tunicate			ļ			
Bare Hard Substrate	ļ					
other						
		1	•			

Total Must = 100%

Total Must = 100%

Standard Abbreviations: nd abbreviation formats Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarq... Octocorat: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Ptla, Pseudoptexaura=Pspt Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cay, P ame, O dif, S rad, S sid, S bou, S hya, S int... Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

	. lopso	u Beach		e / Transect Name	<u> 75 /</u>		
	05		Data Col				
D: 213			1 2	D: 214			
Quad Label: Sample Name or #	30	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)	Quad Label: 3	2,8		% cover or max size (cm)
flax Relief (cm)	1			Max Relief (cm)	7		,
Max Sediment Depth (cm)	\bigcirc			Max Sediment Depth (cm)	6		
Sessile Benthos	% Cover	2		Sessile Benthos	% Cover		
Sediment- circle all: sand shell mud)	Ó			Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous	0	:		Macroalgae- Fleshy+Calcareous	0		
Turf-algae+cyanobacteria (circle all: (g() b)	30			Turf- algae+cyanobacteria (circle all:('g ('6'))	350		
Encrusting Red Algae				Encrusting Red Algae	0_		
Sponge	0			Sponge	0_		
Hydroid	0			Hydroid	\mathcal{O}		
Octocoral	Č			Octocoral	<u>D</u>		
Stony Coral				Stony Coral	1		
Tunicate	6	Oculina rob	11cm 15	Tunicate	0	Queline an	Llan
Bare Hard Substrate	48		9,004	Bare Hard Substrate	44		6
otherVEMITIC	20	<u> </u>		other Wennid	25		
Total Mus	1 = 100%	L		Total Must	= 100%	197	-
Quad Label:	35	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)	Quad Label:	57,5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	Ч			Max Relief (cm)	12		
Max Sediment Depth (cm)	0			Max Sediment Depth (cm)	1		
Sessile Benthos	% Cover			Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)		;	114444	Sediment- (circle all: saind shell mud)	3		
Macroalgae- Fleshy+Calcareous	0			Macroalgae- Fleshy+Calcareous	0		
Turi- algaer cyanobacteria (circle all: g (r b))	30			Turf- algae+cyanobacteria (circle all: (g, (k, b,)	10		
Encrusting Red Algae				Encrusting Red Algae .			
Sponge	0			Sponge	C		
Hydroid /	()			Hydroid	0		
Octocoral	0.	Callenano	Clam	Octocoral	Ō		-
Stony Coral				Stony Coral	0		
Tunicate	0			Tunicate	<u>(i)</u>		ļ
Bare Hard Substrate	57			Bare Hard Substrate	75		
other BN 6	1			other BYO	1		
1. remitis	0 i			illiano Me	10		ŧ
	st = 100%	· · · · · · · · · · · · · · · · · · ·	<u> </u>	LI-BROAMIH)	st = 100%		1

and abbreviation formats

Octocoral: Genus of each colony = Genu: Gorq, Lept, Plex ... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl Storiy Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other-includes: Anemone, Amelid-sessile, Barnacle, Bryozoan, Millepora, sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name UTB	Site Name / Transect Name
Date 10/21/05	Data Collector A

Quad Label: Sample Name or #	7.3	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8		
Max Sediment Depth (cm)	-		
Sessile Benthos	% Cover		
Sediment (circle all sand shell mud)	5		
Macroalgae- Fleshy+Calcareous	\bigcirc		
Turf-algae+cyanobacteria (circle att: g r b)	20		
Encrusting Red Algae	4		
Sponge			
Hydroid	\bigcirc	DUINA STE	
Octocoral			
Stony Coraf)		
Tunicate	0		
Bare Hard Substrate	101		
other [NO 1777	10		
		,	
Total Musi	≈ 100%		

Quad Label: /	15	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	13		
Max Sediment Depth (cm)	-		
Sessile Benthos	% Cover		
Sediment- (circle all sand shell mud)	5		
Macroalgae Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g (r (b))	20		
Encrusting Red Algae	4		
Spónge	ĺ		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicale	\circ		
Bare Hard Substrate	(00)		
other-MOTM	10		

Quad Label: //	2,5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	1		,
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)	10		
Macroalgae- Fleshy+Calcareous	Ö		
Turf-algae+cyanobacteria (circle all: g r b)	<u>/()</u>		
Encrusting Red Algae	2		
Sponge			ļ
Hydroid	\mathcal{L}		
Octocoral	0		
Stony Coral			
Tunicate			
Bare Hard Substrate	52		
other	25		
Mallin			

Total Must = 100%				
Quad Label: Sample Name or #	i e	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)	
Max Relief (cm)				
Max Sediment Depth (cm)				
Sessile Benthos	% Cover			
Sediment- (circle all: sand shell mud)				
Macroalgae- Fleshy+Calcareous				
Turf-algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae .		·		
Sponge				
Hydroid				
Octocoral				
Stony Coral			ļ	
Tunicate			<u> </u>	
Bare Hard Substrate			1	
other				
		1		

Total Must = 100%

Total Must = 100%

itandard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg. Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Ptla, Pseudoptexaura=Pspt Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int... Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

\times	Project	Name	NorthTo	psail	Beach
		10/21/		,	

Data Collector A

10/21/00					
Quad Label: 5	7	List macroalgae Genus % List every coral colony	% cover	Quad Label:	- L
Sample Name or #	10	-and coral condition(s)	(cm)	Sample Name or #) (
••••	(1")				$\mathcal{C}_{\mathcal{V}}$
Max Relief (cm)	8			Max Relief (cm)	7
	T				1
Max Sediment Depth (cm)	1			Max Sediment Depth (cm)	}
Sessile Benthos	% Cover			Sessile Benthos	% Co
Sediment:				Sediment	- :}
(circle all: sand shell mud)	IO			(circle all; sand shell mud)	14
Macroalgae-	()			Macroalgae	7
Fleshy+Calcareous				Fleshy+Calcareous	\cup
Turf- algae+cyanobacteria	6		Ī	Turf- algae+cyanobacteria	15
(circle all: g (r) b)			<u> </u>	(circle all: g(r)b))	2
5	加	1		5	4
Encrusting Red Algae	1		<u> </u>	Encrusting Red Algae	
Sponge		Quino SpX4		Sponge	
Sponge	<u> </u>	Carrier 192		Spunge	77
Hydroid		i	ĺ	Hydroid	$\mathbb{I} \cup$
				.,	177
Octocoral			İ	Octocoral	$I \cup I$
	1				
Stony Coral				Stony Coral	
	p		ĺ		$\langle \hat{A} \rangle$
Tunicate				Tunicate	\cup
	104				61
Bare Hard Substrate	U_1			Bare Hard Substrate	<u> </u>
otherWOTIM	5			other-MOVIV	1~
Outer()	4. 50		 	Cines-19 (C)	
Total Musi	= 100%			Total Mus	= 100
	and gariner	List macroalgae Genus %	% cover		
Quad Label: 🗠	1/5	List every coral colony	or max size	Quad Label: 🏻 🖰	
Sample Name or #	10,0	~and coral condition(s)	(cm)	Sample Name or #	
	1				7
Max Relief (cm)			i	Max Relief (cm)	l
*					12
Max Sediment Depth (cm)	<u> </u>		ļ	Max Sediment Depth (cm)	 _
Sessile Benthos	% Cover			Sessile Benthos	% C
			ļ		+

Quad Label: 5	0	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	9		
Max Sediment Depth (cm)	}		
Sessile Benthos	% Cover		
Sediments: (circle all; sand)shell mud)	+		
Macroalgee Fleshy+Calcareous	0		
Turf-algae+cyanobacteria (circle all: g (r), b))	25		
Encrusting Red Algae	4	Oxulinatou	2_
Sponge	0		
Hydroid	\bigcirc		
Octocoral	0		
Stony Coral			
Tunicate	0		
Bare Hard Substrate	61	·	
other-MOVM	5		<u> </u>

Quad Label: 2 Sample Name or # 2 Sample Name or # 2 Sample Name or # 3 Sample Name or # 5 Sample Name or * 5 Sample Name or * 5 Sample Name or * 5 Sample Name or * 5 Sample Name or * 5 Sample Name or * 5 Sample Name or * 5 Sample Name or * 5 Sample Name or * 5 Sample Name or * 5

* Votal Must = 10076				
Quad Label: The Sample Name or #	30		% cover or max size (cm)	
Max Relief (cm)	7			
Max Sediment Depth (cm)	2_			
Sessile Benthos	% Cover			
Sediment circle all: sand shell mud)	8			
Macroalgae- Fleshy+Calcareous_	\bigcirc			
Turf- algae+cyanobacteria (circle all: g (b))	15			
Encrusting Red Algae .	5	sto		
Sponge	0	Owing 1998		
Hydroid	\bigcirc			
Octocoral	\bigcirc			
Stony Coral				
Tunicate	\bigcirc			
Bare Hard Substrate	24			
other WOTT	الت			

Total Must = 100%

Total Must = 100%

Standard Abbreviations: and abbreviation formats Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoptexaura=Pspt

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Data Collector

Quad Label: Sample Name or #	0	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8		
Max Sediment Depth (cm)	2		
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)	8		
Macroalgae Fleshy+Calcareous			
Turf-algae+cyanobacteria (circle all: g r b)	5		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	73		
other			
Total Must	:		

Quad Label:	15	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	0		
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf-algae+cyanobaeteria (circle all: g r (b))	30		
Encrusting Red Algae			
Sponge			
Hydroid		··-	i.
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	65		
other Ses with	5		

Quad Label: List every coral colony or max size Sample Name or # and coral condition(s) (cm) Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos... % Cover Sediment-(circle all: sand shell mud) Macroalgae-Fleshy+Calcareous Turf- algae+cyanobacteria (circle att: g r 57) **Encrusting Red Algae** Sponge Hydroid Octocoral Stony Coral Tunicate 60 Bare Hard Substrate

List macroalgae Genus % | % cover

73.6	40001		<u> </u>	
Total Must = 100%				
		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)	
Max Relief (cm)	3			
Max Sediment Depth (cm)	D			
Sessile Benthos	% Cover			
Sediment- (circle all: sand shell mud)	0			
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle att: g r /b/)	5			
Encrusting Red Algae .)			
Sponge				
Hydroid			<u> </u>	
Octocoral				
Stony Coral		·	<u> </u>	
Tunicate			<u> </u>	
Bare Hard Substrate	94			
other				

Total Must = 100%

ex win

Standard Abbreviations: and abbreviation formats Total Must = 100%

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg. Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Pila, Pseudoptexaura=Pspt Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int... Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Data Collector RB

Quad Label: Sample Name or #	4	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	Cel	0(v); mr.	Jan 15
Max Sediment Depth (cm)	Ũ		
Sessile Benthos	% Cover		-
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf-algae+cyanobacteria (circle att: g r (b))	10		
Encrusting Red Algae	1		
Sponge			
Hydroid			
Octocoral			
Stony Coral	*		
Tunicate			
Bare Hard Substrate	35/88		
other			
		<u> </u>	
Total Mus	1 = 100%		

Quad Label: Sample Name or #).(~)	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)		OWNER	100
Max Sediment Depth (cm)	43		
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)) (
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	11)		
Encrusting Red Algae	多		
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate		(8)	
other			
Total Mus	1 - 4008/	<u> </u>	

List macroalgae Genus % | % cover Quad Label: List every coral colony or max size Sample Name or # -and corat condition(s) (cm) 100 h 16 X Max Relief (cm) Max Sediment Depth (cm) Sessite Benthos... % Cover Sediment-(circle all: sand shell mud) Macroalgae-Fleshy+Calcareous Turf-algae+cyanobacteria (circle all: g r/b)) **Encrusting Red Algae** Sponge Hydroid Octocoral 1 Stony Coral Tunicate Bare Hard Substrate other-..

Quad Label: Sample Name or #	7.5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max siz (cm)	
Max Relief (cm)	4	OZVIM	102/5	
Max Sediment Depth (cm)	0			
Sessile Benthos	% Cover			
Sediment- (circle all: sand_shell_mud)	0			
Macroalgae- Fleshy+Calcareous			***************************************	
Turf- algae+cyanobacteria (circle all: g r (b))	817			
Encrusting Red Algae	3'_			
Sponge				
Hydroid		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
Octocorat				
Stony Coral	1		<u> </u>	
Tunicate				
Bare Hard Substrate	10			
other 515 v. 13-	2			

79.00

Total Must = 100%

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caut, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarq. Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex..., except Pseudopterogogia=Pspt, Plexaurella=Plla, Pseudoptexaura=Pspt Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int... Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index, #0 1 2 3

Project	Name	N	[B

Date 10/21/05

Data Collector

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)		Derlyner	10m/n
Max Sediment Depth (cm)	1		
Sessile Benthos	% Cover		
Sediment- (circle all; sand shell mud)	50		
Macroalgae- Fleshy+Calcareous			
Turf-algae+cyanobacteria (circle att: g r (b))	31		-
Encrusting Red Algae	10		
Sponge			
Hydroid			
Octocoral			
Stony Coral]		<u> </u>
Tunicate			
Bare Hard Substrate	3		
other JES vara	3		
Total Mus			

Quad Label: 5		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	Older.	100
Max Sediment Depth (cm)	Á		
Sessile Benthos	% Cover		
Sediment- (circle all: sand) shell mud)	63		
Macroalgae- Fleshy+Calcareous	,		
Turf-algae+cyanobacteria (oircle all: g r b)	26		
Encrusting Red Algae	2		
Sponge	2		
Hydroid			
Octocoral			
Stony Coral)		
Tunicate			
Bare Hard Substrate	1		
other Sl 5 run	3		
Total Mus	= 100%		

List macroalgae Genus % | % cover Quad Label: List every coral colony, or max size Sample Name or # -and coral condition(s) (cm) Oluling Max Relief (cm) Max Sediment Depth (om) Sess<u>ile Benthos...</u> % Cover Sediment-(circle all sand shell mud) Macroalgae-Fleshy+Calcareous Turf-algae+cyanobacteria (circle all: g r b) OI**Encrusting Red Algae** Sponge Hydroid Octocorat Stony Coral Tunicate ∂v **Bare Hard Substrate** other-

Total Made 10010					
Quad Label: Sample Name or #	75	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)		
Max Relief (cm)	5	Bully r.	lan-13		
Max Sediment Depth (cm))				
Sessile Benthos	% Cover				
Sediment- (circle all: (sand shell mud)	5				
Macroalgae- Fleshy+Calcareous					
Turf- algae+cyanobacteria (circle all: g r (b)	82				
Encrusting Red Algae	3				
Sponge					
Hydroid					
Octocoral	· 				
Stony Coral					
Tunicate					
Bare Hard Substrate	5				
other B1722					
CH WAS	3				

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Total Must = 100%

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg.

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoptexaura=Pspt

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Project Name	NTB	Site Name / Transect Name	T58
Date 16/21	105	Data Collector RB	

Quad Label: Sample Name or #	3v	-and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	Oculine	104/3
Max Sediment Depth (cm)	3		
Sessile Benthos	% Cover		
Sediment- (circle all: sand) shell mud)	25		
Macroalgae- Fleshy+Calcareous			
Turf-algae+cyanobacteria (circle all: g r b	59		
Encrusting Red Algae	_3.		
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	IV		
other Ses war)		
Total Mus	t = 100%		

Quad Label: 33,5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	کی	Desting	1cm/9
Max Sediment Depth (cm)		. "	
Sessile Benthos	% Cover		
Sediment- (circle all; sand shell mud)	10		
Macroalgae- Fleshy+Calcareous			
Turf-algae+cyanobacteria (circle all: g r (b))	GU		
Encrusting Red Algae	10		
Sponge			
Hydroid			
Octocoral			
Storiy Coral)		
Tunicate:			-
Bare Hard Substrate	Tu		
otherSPS NOTM	3		1

Total	Mirch	= 100%

Total widst = 100 /g			
Quad Label: 3	5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	£	Declar	100/3.
Max Sediment Depth (cm)	_\		
Sessile Benthos	% Cover		
Sediment- (circle all sand shell mud)	25		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r (b))	68		
Encrusting Red Algae)		
Sponge	: 3	**	
Hydroid			
Octocoral			
Stony Coral)		
Tunicate			
Bare Hard Substrate	1		
other BNAZ	1		

10ta must - 10076			
Quad Label: 37.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	-7	OZVINZ	1ch, x>
Max Sediment Depth (cm)	D		
Sessile Benthos	% Cover		
Sediment- (circle all; sand shell mud)	2		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r (b))	75		
Encrusting Red Algae	11		
Sponge	2		
Hydroid	0		
Octocoral	Ŋ		
Stony Coral			
Tunicate	()		
Bare Hard Substrate	ID		
other 25 war	9 .		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

t = 100%
Total Must = 100%

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarq...
Octocoral: Genus of each colony = Genu: Gorq, Lept, Plex... except Pseudopterogorqia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspt

Stony Coral: Genus species of each colony = G spe; A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int....

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index #0 1 2 3

Date 10/21/05

Data Collector

Quad Label: 40		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
.aax Relief (cm)	60	Devine	1cm+3
Max Sediment Depth (cm)	D		
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf-algae+cyanobacteria (circle all: g r (b))	9)		
Encrusting Red Algae	9		
Sponge	4		
Hydroid	,		
Octocoral			
Stony Coral)		
Tunicate			
Bare Hard Substrate			
other 505 new			
		:	
Total Must = 100%			

Quad Label: Ya.5		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5.	Ocalin	104.2
Max Sediment Depth (cm)	3		
Sessile Benthos	% Cover		
Sediment- (circle all: sand)shell mud)	15		
Macroalgae Fleshy+Calcareous			
Turf-algae+cyanobacteria (circle afl: g r (b))	77		
Encrusting Red Algae	5		
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate		;	
Bare Hard Substrate			
other-SXWM		6 5 :	
Total Mus	t = 100%	1	

Quad Label: 4	5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8	Ocular	Parity.
Max Sediment Depth (cm)	2		, 3
Sessile Benthos	% Cover		
Sediment- (circle all sand shell mud)	D		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle afl: g r b)	74		
Encrusting Red Algae	8		
Sponge			
Hydroid			
Octocoral			<u> </u>
Stony Coral	1		
Tunicate			
Bare Hard Substrate	10		
other 905 WC	42		
,			

Quad Label: 475		t.ist macroalgae Genus % t.ist every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6	Olden	1cm#
Max Sediment Depth (cm)	O		
Sessile Benthos	% Cover		
Sediment- (circle all; sand shell mud)	0	,	and the state of t
Macroalgae Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r /b))	85	3	
Encrusting Red Algae .	$ \hat{l}\hat{v} $,	
Sponge	1	·	
Hydroid			
Octocoral	<u> </u>		
Stony Coral			
Tunicate			
Bare Hard Substrate	3		
other			
			i

Total Must = 100%

Total Must = 100%

tandard Abbreviations: nd abbreviation formats Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg... Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoptexaura=Pspt Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int... Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other-includes: Anemone, Annelid-sessile, Bamacle, Bryozoan, Millepora, sp., Mollusca-sessile, Seagrass, Zoanthid.

Date

Data Collector RR

Quad Label: 5	0	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6	Darling r	1cmx18
Max Sediment Depth (cm)	D		i,
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)	\mathcal{U}		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r o))	69		region in the control of the control
Encrusting Red Algae	10		
Sponge	\mathcal{U}		
Hydroid			
Octocoral			
Stony Coral	\		
Tunicate			
Bare Hard Substrate	U		
otherSQS W/m	10		
Total Win			

Quad Label:	25	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)		Oluline 1.	KK1-3
Max Sediment Depth (cm)	70		
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)	D		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r (b))	84		
Encrusting Red Algae	3		
Sponge	5		
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	3		
otherSls~Vm	4		

Total Must = 100%

Quad Label:	5	List macroalgae Genus % List every coral colony -and coral condition(s)	or max size (cm)
Max Relief (cm)	3	Owliner	3
Max Sediment Depth (cm)	O	Owlive v.	2
Sessile Benthos	% Cover		
Sediment- (circle all; sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r (b))	35		
Encrusting Red Algae	20		
Sponge	8		
Hydroid			
Octocoral			
Stony Coral	2		
Tunicate			
Bare Hard Substrate	33		
other			

Quad Label: 5	7,5	List macroalgae Genus % List every coral colony ~and coral condition(s)	or max sizi (cm)	
Max Relief (cm)	00	telesto		
Max Sediment Depth (cm)	D			
Sessile Benthos	% Cover			
Sediment- (circle all; sand shell mud)	0			
Macroalgae- Fleshy+Calcareous_	1			
Turf- algae+cyanobacteria (circle all: g r /b)	83			
Encrusting Red Algae .	5			
Sponge	5			
Hydroid	1			
Octocorat				
Stony Coral				
Tunicate			<u> </u>	
Bare Hard Substrate	3		<u> </u>	
otherSlam	}:			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Total Must = 100% Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarq., Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspt Stony Coral: Genus species of each colony = G spe: A cer. A aga, C nat, M ann, M cay, P ame, O dif, S rad, S sid, S bou, S hya, S int... Corat condition: W=white disease(s), O=other disease(s), B=bleaching, Corat Stress Index # 0 1 2 3

'andard Abbreviations: ad abbreviation formats

Total Must = 100%

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothammion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Ptex... except Pseudopterogorgia=Pspt, Ptexaurella=Ptla, Pseudoptexaura=Pspt

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, Q dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), Q=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

BA 1

)ate /0 - 20	-05		Data Coll	ector EH			
D 53				10:54			
Quad Label:	\mathcal{C}		% cover or max size (cm)	Quad Label: Sample Name or #	12.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cove or max (cm)
ax Relief (cm)	1			Max Relief (cm)	2	r 801/14	¥
ax Sediment Depth (cm)	(0	\		Max Sediment Depth (cm)	10	4 determined to	<u> </u>
ssile Benthos	% Cover			Sessile Benthos	% Cover	be bryozoan	
ediment- irde all: sand shell mud)	CH 33			Sediment- (circle all: sand, shell mud)	X 95		
lacroalgae				Macroalgae-	1	<u>-</u>	<u> </u>
leshy+Calcareous urf- algae+cyanobacteria	 		·	Fleshy+Calcareous Turf- algae+cyanobacteria	<u> </u>		<u> </u>
ircle all: (g) n (b)	1			(circle all: (g) (h (b))			
ncrusting Red Algae				Encrusting Red Algae	Ô		<u> </u>
ponge	Ô			Sponge	0		
ydroid	0		***	Hydroid	0		
ctocoral		Carlinar.	LICEN XI	Octocorał	0		
lony Coral	1	Clarke tolor	1	Stony Coral	1	Callinar.	Z c
unicate	0	0		Tunicate	0	Carlinar.	[2] >
are Hard Substrate	1			Bare Hard Substrate			1200
ther VCIMIA				other			
BNO	1			bryozoan			1
Total Must	= 100%	·	<u> </u>	Total Must	= 100%	<u> </u>	1
Quad Label:		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)	Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cove or max (cm)
Max Relief (cm)			_	Max Relief (cm)			
Max Sediment Depth (cm)				Max Sediment Depth (cm)			
Sessile Benthos	% Cover		-	Sessile Benthos	% Cover		1
Sediment-	-			Sediment-			-
(circle all: sand shell mud) Macroalgae-			<u> </u>	(circle all: sand shell mud) Macroalgae-	_		
Fleshy+Calcareous			<u></u>	Fleshy+Calcareous			
urf-algae+cyanobacteria circle all: g r b)				Turf- algae+cyanobacteria (circle all: g r b)			
ncrusting Red Algae				Encrusting Red Algae .			
Sponge				Sponge			
Hydroid				Hydroid			
Octocoral				Octocoral			_
Stony Coral_				Stony Coral	<u> </u>		
Tunicate				Tunicate			
Bare Hard Substrate			<u> </u>	Bare Hard Substrate			<u> </u>
other				other			
				1 1			
Total Mu	st = 100%			Total Mu:	st = 100%		-

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg., Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoptexaura=Pspt Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cay, P ame, O dif, S rad, S sid, S bou, S hya, S int... Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Date

Data Collector

Quad Label:	<u> </u>		% cover or max size (cm)
Max Relief (cm)	0	JOPYV	U
Max Sediment Depth (cm)		\60xi	95
Sessile Benthos	% Cover	,	
Sediment:— (circle all; sand shell mud)	9)	0: dy	
Macroalgae- Fleshy+Calcareous			
Turf-algae+cyanobacteria (circle all: g r b)	Ü		
Encrusting Red Algae	Ú.		
Sponge	v		
Hydroid			
Octocoral	1		
Stony Coral	0		
Tunicate	V		<u> </u>
Bare Hard Substrate	V		
other			
			1

Quad Label: Sample Name or #	5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	7	leoko	52
Max Sediment Depth (cm)	5	Legtu	52
Sessile Benthos	% Cover	166×1	50 cm f
Sediment- (circle all, sand shell mud)	Con to	Ç,	
Macroalgae Fleshy+Calcareous	5	0:47	3
Turf-algae+cyanobacteria (circle all: g r (b))	1		
Encrusting Red Algae	3	Oculhar.	lan+6
Sponge	2		
Hydroid	61		
Octocoral	14		
Stony Coral	21		
Tunicate	0		
Bare Hard Substrate	0		
other-W/YVZ)		
ses work			

Total Must ≈ 100%

Total Must = 100%

		List macroalgae Genus %	9/ 00//05	
Quad Label: Sample Name or #		List every coral colony	or max size	
Sample Name of #		and coral condition(s)	(311)	
Max Relief (cm)				
Max Sediment Depth (cm)				
Sessile Benthos	% Cover			
Sediment- (circle all: sand shell mud)				
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicate			<u> </u>	
Bare Hard Substrate			ļ	
other			<u> </u>	

Quad Label: Sample Name or#			% cover or max size (cm)
Max Relief (cm)		·.	
Max Sediment Depth (cm)			
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle aft: g r b)			
Encrusting Red Algae			ļ
Sponge			
Hydroid			
Octocoral			ļ
Stony Corat			<u> </u>
Tunicate			ļ
Bare Hard Substrate			<u> </u>
other			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg... Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspt Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, Q dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other-includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora, sp., Mollusca-sessile, Seagrass, Zoanthid.

Total Must = 100%

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Date

Data Collector

Quad Label: 3	1.5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Max Sediment Depth (cm)	13		
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)	(JUI)	1	
Macroalgae			
Turf-algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			`
Stony Coral			
Tunicate			
Bare Hard Substrate			
other			
Total Miles			

Quad Label:	5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	15		
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)	TW		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			ļ
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other			
			-

Total Must = 100%

Total Must = 100%

Quad Label: 7	2.5	List macroalgae Genus % List every corat colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	-⟨-		
Sessile Benthos	% Cover		
Sediment- (circle all sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			<u> </u>
Stony Coral			
Tunicate			
Bare Hard Substrate	<u> </u>		<u> </u>
other			ļ

Quad Label: O	Q	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max siz (cm)
Max Relief (cm)	2	lepto	99
Max Sediment Depth (cm)	7	lepto Lepto	25
Sessile Benthos	% Cover	·	***************************************
Sediment- (circle all: rand)shell mud)	97		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	0		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	1		
Octocoral	1		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	U		
otherSes valva	1		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

= 100%

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg.

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoptexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cay, P ame, Q dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

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Date

Quad Label: Sample Name or # 3	اح	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
лах Relief (cm)	U		
Max Sediment Depth (cm)	19.		
Sessile Benthos	% Cover		
Sediment- (circle all; sand shell mud)	ND		
Macroalgae- Fleshy+Calcareous			
Turf-algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	_		
other			

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	<u></u>
	<u></u>
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Total Must = 100% Total Must = 100%

Quad Label: 3	5		% cover or max size (cm)
Max Relief (cm)	$\widehat{\mathcal{D}}$	lepto leptu	33
Max Sediment Depth (cm)	17	12010	りり
Sessile Benthos	% Cover	,	
Sediment- (circle all sand shell mud)	40009	\$	
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			<u></u>
Hydroid			
Octocoral	2		
Stony Coral			
Tunicate			
Bare Hard Substrate			
other			

Quad Label: 3	V.	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	19		
Sessile Benthos	% Cover		
Sediment- (circle all/sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			<u>.</u>
Encrusting Red Algae .			
Sponge			
Hydroid			
Octocoral			<u> </u>
Stony Coral			
Tunicate			<u> </u>
Bare Hard Substrate			1
other			
	1		1

Total Must = 100%

Total Must = 100%

'andard Abbreviations: id abbreviation formats Macroalqae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg... Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoptexaura=Pspt Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int... Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Date

Quad Label: Sample Name or #	15	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	8		
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)	TID		
Macroalgae- Fleshy+Calcareous			
Turf-algae+cyanobacteria (circle alt: g r b)	,		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicale			
Bare Hard Substrate			
other			
Total Mus			

Quad Label:	<u></u>	List macroalgae Genus % List every coral colony ~and coral condition(s)	or max size
Sample Name of #	7	-and coral condition(s)	(cm)
Max Relief (cm)	U	lepto	93
Max Sediment Depth (cm)	13		
Sessile Benthos	% Cover		
Sediment (circle all: sand shell mud)	99		
Macroalgae- Fleshy+Calcareous	·		
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral)		
Stony Coral			
Tunicate			
Bare Hard Substrate			
other			

Total Must = 100%

Total Must = 100%

Quad Label: (2.5	List macroalgae Genus % List every corat colony ~and corat condition(s)	% cover or max size (cm)		
Max Relief (cm)	2				
Max Sediment Depth (cm)	20				
Sessile Benthos	% Cover				
Sediment- (circle all sand shell mud)	lvo				
Macroalgae- Fleshy+Calcareous					
Turf- algae+cyanobacteria (circle all: g r b)					
Encrusting Red Algae					
Sponge					
Hydroid			<u> </u>		
Octocoral					
Stony Coral					
Tunicate					
Bare Hard Substrate					
other,					
,			1		

Quad Label: 4	10	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover / or max siz((cm)
Max Relief (cm)	7		
Max Sediment Depth (cm)	19		
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)	12		
Macroalgae Fleshy+Calcareous			,
Turf- algae+cyanobacteria (circle all: g r b)			<u>.</u>
Encrusting Red Algae .			
Sponge			
Hydroid			
Octocorat			<u> </u>
Stony Coral			
Tunicate			-
Bare Hard Substrate			
other	ļ		·
	1	1	i

Total Must = 100%

Standard Abbreviations: and abbreviation formats

= 100%

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarq...

Octocoral: Genus of each colony = Genu: Gorq, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoptexaura=Pspl

Stony Corat: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other-includes: Anemone, Annelid-sessile, Barnade, Bryozoan, Millepora, sp., Mollusca-sessile, Seagrass, Zoanthid.

Mollusca-sessile, Seagrass, Zoanthid.

ONG Spine Por 9)

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Date 10	123	105	Data Coll	ector				
	* /	/						
Quad Label: () Sample Name or #	15	List macroalgae Genus List every coral colony ~and coral condition(s)	% % cover or max size (cm)	Quad Label:		List macroalgae Go List every coral cut -and coral conditio	uny Gra	nax size
Max Relief (cm)	35/6	bin Mary	- / / P	Max Relief (cm)	0 0			
Max Sediment Depth (cm)	3/3	02 V - Nr. 103	De lack	Max Sediment Depth (cm)	13/13			
Sessile Benthos	% Cover			Sessile Benthos	%'Cover			
Sediment- (circle all: sand shell mud)	理 45			Sediment (circle all/sand shell mud)	עטן שו			
Macroalgae- Fleshy+Calcareous	710			Macroalgae= Fleshy+Calcareous	:	:		
Turf-algaetcyanobacteria (circle all: g r b)	69145			Turf- algae+cyanobacteria (circle all: g r b)	4			
Encrusting Red Algae	50			Encrusting Red Algae		· · · · · · · · · · · · · · · · · · ·		
Sponge	7 V		1	Sponge				
Hydroid	40			Hydroid	e e	Elec-		
Octocoral	71			Octocoral				
Stony Coral	711		1	Stony Coral	: :		· _	
Tunicate	7 1	:		Tunicate				
Bare Hard Substrate	NV			Bare Hard Substrate	<u>'</u>			
other 18172		:		other	1			-
Segment Total Must	1000	ŧ				i i		
Total Must	.= 100%			Total Must	t = 100%			
Quad Label:) 25	List macroalgae Genus List every coral colony -and coral condition(s)	% cover or max size (cm)	Quad Label:) 33	List macroalgae Go List every coral col -and coral condition	lony or n	nax siz
	12 0	į	1		[n:/)	- 7 i .		. 1
Max Relief (cm) Max Sediment Depth (cm)	23 30			Max Relief (cm)	0 0	leafo V	50 5	<u> </u>
Sessile Benthos	% Cover			Max Sediment Depth (cm) Sessile Benthos	% Cover			_
Sediment-	wlu			Sediment-			25:3	
(circle all sand shell mud) Macroalgae- Fleshy+Calcareous	00 (2)			(circle all, sand shell mud) Macroalgae	98 la	republican and a second a second and cond and cond and a second and a second and a		
Turf- algae+cyanobacteria (circle all: g r b)				Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r b)		· · · · · · · · · · · · · · · · · · ·		*
Encrusting Red Algae	,	1	11.11.11.11.11.11.11.11.11.11.11.11.11.	Encrusting Red Algae		1		
Sponge		,		Sponge	_	3.7.5		
Hydroid		·		Hydroid				
Octocoral				Octocoral	3;			
Stony Coral	-			Stony Coral				
<u>Funicate</u>	ļ.,	1		Tunicate				
Bare Hard Substrate				Bare Hard Substrate			, !!	
-45								
other	***	1		other				

Standard Abbreviations:

and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg.

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Pila, Pseudoptexaura=Pspt

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: Wandate disease(s), October disease(s), Pseudopterogorgia-Pspt, Plexaurella=Pila, Pseudoptexaura=Pspt

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: Wandate disease(s), October disease(s), Pseudopterogorgia-Pspt, Plexaurella=Pila, Pseudoptexaura=Pspt

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other-includes: Anemone, Annelid-sessile, Bamade, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

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Date

Data Collector

Quad Label:	1 17	rus	List macroalga List every cora -and coral con	l colony		ver ix size	Quad Label:	W/-	7	List macroalgatist every con- -and coral co	al colony	% co or ma (cm)	
· · · ·		175	. ((-/	;(=, ;			7 /-	77-	and cordi co	- California	(City	
Max Relief (cm)	0	U					Max Relief (cm)	U					
fax Sediment Depth (cm)	33	18					Max Sediment Depth (cm)	æ					
iessile Benthos	%	Cover					Sessile Benthos	%	over				
Sediment- circle all: sand)shell mud)	11/0	KU				*	Sediment (circle all (sand shell mud)	CC					
Macroalgae- Fleshy+Calcareous			1				Macroalgae- Fleshy+Calcareous						
Turf-algae+cyanobacteria		1			-		Turf- algae+cyanobacteria						
circle all: g r b)					1		(circle aft: g r b)	乚		<u>.</u>			
Encrusting Red Algae	L						Encrusting Red Algae	_					
Sponge							Sponge	L	ļ				
-lydroid							Hydroid	L					
Octocoral		į					Octocoral						_/
Stony Coral							Stony Coral						
Funicate							Tunicate						
Bare Hard Substrate							Bare Hard Substrate						
other							other	Γ					_
					1	i		_					
Total Mus	= 1	00%	<u> </u>		·		Total Mus	t = 1	00%			<u> </u>	
Quad Label: Sample Name or #			List macroalga List every cora ~and corat cor	l colony	•	ver ax size	Quad Label: Sample Name or #			List macroalg List every cor ~and coral co	al colony	% co or ma (cm)	
Max Relief (cm)					<u> </u>		Max Relief (cm)						
Max Sediment Depth (cm)		<u>.</u>					Max Sediment Depth (cm)		and the second				! !
Sessile Benthos	%	Cover					Sessile Benthos	%	Cover		3,000		
Sediment- (circle all: sand_shell_mud)						9	Sediment- (circle all: sand shell mud)						
Macroalgae-	Γ				T		Macroalgae-	T				1	T
Fleshy+Calcareous ,	L			1	Ц	· -	Fleshy+Calcareous	_				ļ	<u> </u>
Turf- algae+cyanobacteria							Turf- algae+cyanobacteria					1	
(circle all: g r b)	\vdash	-	 	ķ		-	(circle all: g r b)	+	-			 	1
Encrusting Red Algae	L	-		1	<u> </u>	· -	Encrusting Red Algae .	\bot	-			<u> </u>	ļ
Sponge	L		ļ	i.	<u> </u>	·	Sponge	_				ļ	
Hydroid					ļ	}	Hydroid					1	<u>_</u>
Octocoral	L						Octocoral						-
or ol							Stony Coral						
Stony Coral	┺												
Tunicate	T						Tunicate						

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Bare Hard Substrate

other-.

Total Must = 100%

Macroalgae: Pool to Genus = Genu or Genus; Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Ptla, Pseudoptexaura=Pspt

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P'ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index #0 1 2 3

Bare Hard Substrate

Project Name No Date 10 23/0)5				Data Coll	ector AD	_			A
Quad Label: 2	5	Ji	List macroalyce © List every coral co ~and coral condition	lony	% ouver or max size (cm)	Quad Label: 12	.5	7.5	List macroalgae Genus % List every coral colony -and coral condition(s)	% co or ma (cm)
Max Relief (cm)	5	1)				Max Retief (cm)	0	0		1
Max Sediment Depth (cm)	W	2				Max Sediment Depth (cm)	18	15		
Sessile Benthos	% C	over				Sessile Benthos	% (over		
Sediment- (circle all: sand shell mud)	94	20				Sediment- (circle all: sand shell mud)	10	100		and the same
Macroalgae- Fleshy+Calcareous	\cap	0				Macroalgaë- Fleshy+Calcareous				
Turf-algae+cyanobacteria (circle att: g (r) b)	1	5				Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae	1	l	- Consideration of the Constant of the Constan			Encrusting Red Algae			1	
Sponge	1					Sponge				
Hydroid	0	0				Hydroid				
Octocoral	\Diamond	0	0,8) Rxo		Octocorat				
Stony Coral	1	1			14	Stony Coral				<u> </u>
Tunicate	0	0				Tunicate				
Bare Hard Substrate	1	SH	ئ			Bare Hard Substrate				
other [N (1177))	10				other				
									:	
Total Mus	t'= 10	0%				Total Mus	1 = 10	00%		

Max Relief (cm) Max Sediment Depth (cm) % Cover Sessile Benthos... 1100 Sediment-100 (circle all; sand shell mud) Macroalgae... Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r b) Encrusting Red Algae Sponge Hydroid Octocorat Stony Coral Tunicate Bare Hard Substrate other -...

Quad Label:	0	37.5	List macroalg List every cor ~and coral co	at cotony	% cover or max size (cm)
Max Relief (cm)	0	0			
Max Sediment Depth (cm)	75	17		(
Sessile Benthos	<u>% (</u>	over			, , , , , , , , , , , , , , , , , , ,
Sediment- (circle all, sand, shell mud)	100	100			
Macroalgae- Fleshy+Calcareous			<u></u>		Sandhara
Turf- algae+cyanobacteria (circle all: g r b)					!
Encrusting Red Algae					
Sponge	$oxed{igspace}$				
Hydroid	┞				
Octocoral	_				
Stony Coral			<u> </u>	4	
Tunicale				1	
Bare Hard Substrate	\perp	1		<u> </u>	
other	\perp	and the second	<u> </u>	1	
				,	

Standard Abbreviations: and abbreviation formats

Total Must = 100%

Total Must = 100%

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryotharmion, Caut, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

Octooral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Ptla, Pseudoptexaura=Pspt

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Date 10123/05

Data Collector AD

Quad Label: K	ú	72	List macroalga List every cora ~and coral con	e Genus % I colony dition(s)	% cov or max (cm)		Quad Label: Sample Name or #	-		List macroak List every co -and coral c	gae Genus % ral colony ondition(s)	% cov or max (cm)	
Max Relief (cm)	\mathcal{O}	٥	,		<u> </u>	<u>L</u>	Max Relief (cm)					-	
Max Sediment Depth (cm)	18:	> ZV			<u> </u>		Max Sediment Depth (cm)	Ì					
Sessife Benthos	<u>% Ca</u>	ver					Sessile Benthos	% Co	<u>⁄er</u>				
Sediments (circle all, sand shell mud)	100	Mo					Sediment- (circle all: sand shell mud)						
Macroalgae- Fleshy+Calcareous					<u> </u>		Macroalgae- Fleshy+Calcareous						
Turf-algae+cyanobacteria (circle all: g r b)							Turf- algae+cyanobacteria (circle all: g r b)						
Encrusting Red Algae	ļ				<u> </u>		Encrusting Red Algae						
Sponge					<u> </u>	_	Sponge		_				
Hydroid				-	<u></u>		Hydroid						
Octocorat							Octocoral						
Stony Coral							Stony Coral			·			
Tunicate	ļ	ļ				<u> </u>	Tunicate						
Bare Hard Substrate		-				<u> </u>	Bare Hard Substrate						
other	<u> </u>	-				ļ	other						
						<u> </u>					٠,		-
Total Musi	1 = 100	%					Total Must	= 1009	%				
Quad Label: Sample Name or #			List macroalga List every cora ~and coral cor	t colony	or man (cm)		Quad Label: Sample Name or #			List macroal List every or ~and coral or	-	% co or ma (cm)	
Max Relief (cm)							Max Relief (cm)						
Max Sediment Depth (cm)							Max Sediment Depth (cm)	A.A. (A5716)					<u>!</u>
Sessile Benthos	<u>% C</u>	over					Sessile Benthos	% Co	ver				
Sediment- (circle all; sand shell mud)		-		6			Sediment- (circle all; sand shell mud)						
Macroalgae- Fleshy+Calcareous							Macroalgae- Fleshy+Calcareous						ļ
Turf- algae+cyanobacteria (circle all: g r b)					<u> </u>		Turf- algae+cyanobacteria (circle all: g r b)					<u></u>	<u> </u>
Encrusting Red Algae	ļ	1					Encrusting Red Algae					-	
Sponge		-			ļ	ļ	Sponge						
Hydroid							Hydroid			i		ļ	<u> </u>
Octocorat		1		ļ			Octocorat					-	ļ
Stony Coral	_	1		 			Stony Coral						1
Tunicate		No. of Concession, Name of			-		Tunicate						-
Bare Hard Substrate	_	-			ļ	<u> </u>	Bare Hard Substrate						
other	-		ļ		ļ	ļ	other						
		1		1	1	1	1 1			1 [[
Total Mus	n = 10	OÉ,	<u> </u>			<u> </u>	Total Mus	20 5 5 2 2	201				<u> </u>

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoptexaura=Pspt

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other-includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora, sp., Mollusca-sessile, Seagrass, Zoanthid.

Data Collector

Quad Label:	9	List macroalgae Genus % % cover List every coral colony or max size -and coral condition(s) (cm)
Max Relief (cm)	B	18040 1
Max Sediment Depth (cm)	1	1900
Sessite Benthos	% Cover	Det I
Sediment- (circle all: sand shell mud)	878	59v-1x1)6
Macroalgae- Fleshy+Calcareous	3	1)(VW-1, 3)
Turf-algae+cyanobacteria (circle alt: g r /b)	3	
Encrusting Red Algae	0	
Sponge	0	The state of the s
Hydroid		
Octocoral	ļ	Sangaly
Stony Coral	1	Squiqqly determined to
Tunicate		bebryozan
Bare Hard Substrate		
other Ses Win)	
bryozoan	2	2
Total Mus	t = 100%	

Quad Label: Sample Name or #	5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)		Och in r.	4
Max Sediment Depth (cm)	4	Ocu in r.	U
Sessile Benthos	% Cover	Dulver.	6
Sediment- (circle all: sand shell mud)	70	12Pto V	20
Macroalgae- Fleshy+Calcareous	2	0,147	3
Turf-algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge		i i	,
Hydroid		-	
Octocoral			· · · · · · · · · · · · · · · · · · ·
Stony Coral		4	
Tunicate			2//
Bare Hard Substrate			
other		i. A.	
Total Mus	t = 100%		

List macroalgae Genus % | % cover Quad Label: List every coral colony or max size Sample Name or # -and corat condition(s) (cm) Max Relief (cm) Max Sediment Depth (cm) Sessite Benthos... % Cover Sediment-(circle all sand shell mud) Macroalgae-Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r/b)) **Encrusting Red Algae** Sponge Hydroid Octocoral Stony Coral Tunicate Bare Hard Substrate other.

Quad Label: Sample Name or #	0		List macroalg List every cor ~and coral co		% cov or max (cm)	
Max Relief (cm))	Ow	νη r. Ν'ζ r.	30	57.6
Max Sediment Depth (cm)	5		Owl	νιr.	lev	4
Sessile Benthos	% Co	ver	1997	\mathcal{V}	9	0
Sediment- (circle all:(sand shell mud)	3		0,0	۲у	4)
Macroalgae- Fleshy+Cafcareous	TV					
Turf- algae+cyanobacteria (circle all: g r (b)	5	5				
Encrusting Red Algae .	11)_				
Sponge	1					
Hydroid	3					
Octocoral				·		
Stony Coral	4				_	
Funicate	3					
Bare Hard Substrate	10)				
other Ses which	\					

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Total Must = 100% Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarq... Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Ptla, Pseudoptexaura=Pspt Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int... Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

BA 2a

Date

Data Collector

Quad Label: Sample Name or #	(List macroalgae Genus % List every coral colony ~and coral condition(s)	% cove or max : (cm)		Quad Label: 1	0,5	11 11	List macroalgae Gerus % List every coral colony -and coral condition(s)	% cov or max (cm)	
Max Relief (cm)	A	0				Max Relief (cm)	13	\Diamond			-
Max Sediment Depth (cm)	14	15		4,000		Max Sediment Depth (cm)	11/	18			
Sessile Benthos	% C	over				Sessile Benthos	% Co	<u>ver</u>			
Sediment- (circle all: sand shell mud)	110	100				Sediment- (circle all: sand shell mud)	100	(%)			-
Macroalgae-	''	1-				Macroalgae	100	40		1	-
Fleshy+Calcareous Turf-algae+cyanobacteria				i		Fleshy+Calcareous Turf-algae+cyanobacteria					-
(circle all: g r b)		1	testification of	-		(circle all: g r b)			-	 	
Encrusting Red Algae		1	7			Encrusting Red Algae		_		ļ	-
Sponge		1	1- 4- 1- 1-	1		Sponge					
Hydroid		}	<u> </u>			Hydroid				ļ	of the second
Octocoral		; ;				Octocoral					1
Stony Coral		,	er.			Stony Coral					
Tunicate		<u> </u>				Tunicate				<u> </u>	
Bare Hard Substrate		7				Bare Hard Substrate				ļ	
other		-				other				ļ	-
	<u> </u>	,	L								
Total Must	: = 100	1 %				[D: 10] Total Must	= 100	%		1.01	<u> </u>
Quad Label: 8	37.5	8	List macroalgae Genus % List every coral colony ~and coral condition(s)	or max (cm)		Quad Label: Sample Name or #	1.15	30	List macroalgae Genus % List every coral colony -and coral condition(s)	or ma (cm)	1
Max Relief (cm)	()	10	and the second			Мак Relief (cm)	V	0			(l. comments
Max Sediment Depth (cm)	M	9	1			Max Sediment Depth (cm)	H	10			
Sessile Benthos	% C	over	;			Sessite Benthos	% C	ver			
Sediment- (circle all: sand shell mud)] (1)	10				Sediment- (circle all: sand shell mud)	86	gg			
Macroalgae		1				Macroalgae. Fleshy+Calcareous	()	-0			!
Turf-algae+cyanobacteria (circle all: g r b)						l'urt- algae+cyanobacteria (circle alt: g r b)	4				
Encrusting Red Algae						Encrusting Red Algae	()	0			1
Sponge		The second second	· ·	,		Sponge	Ò	0	(1/0)/0	1, 5	9
Hydroid		1				Hydroid	1	10	0.00]×	<i>n</i>
Octocoral		-))	Octocorat		$\mathcal{I} = \mathcal{D}$	000	12/	<u> </u>
Stony Coral		1_				Stony Coral	2	0			A
Tunicate	_	_	<u> </u>			Tunicate	0	0:			
Bare Hard Substrate	_		- American			Bare Hard Substrate	11	10		_	
other′	_	1	200			other	_	-			*
*	1 - 1	2000				Total Mu:	1 = 12	00/			í.
Total Mu:	st = 10	10%				Lotal Mus	st = 10	U%			

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarq, Octocoral; Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoptexaura=Pspt, Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int.... Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other-includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora, sp., Mollusca-sessile, Seagrass, Zoanthid.

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Quad Label: 2 Sample Name or #	N 9	List macroalgae Genus %	Data Coll	10:105/106	77	-0		
Sample Name or #	N M	List macroalgae Genus %	1.04					
Max Relief (cm)	113 K	List every coral colony	% cover or max size (cm)	Quad Label: χ°	2.5	List macroalgae List every coral -and coral cond	colony la	% cover or max size cm)
The state of the s	00		1	Max Relief (cm)	0/2	Coty	CHY	35
Max Sediment Depth (cm)	15 4			Max Sediment Depth (cm)	311	Dichy!	Dich	2 5
Sessile Benthos	% Cover	i		Sessile Benthos	% Cover		abua	5
Sediment (circle all sand shell mud)	99 100	,		Sediment- (circle all: sand shell mud)	DN 25		1	
Macroalgae Fleshy+Calcareous				Macroalgae Fleshy+Calcareous	50			
Turf- algae+cyanobacteria (circle all: g r b))	1			Turf-algae+cyanobacteria (circle alt: g r b)	15	1		
Encrusting Red Algae				Encrusting Red Algae	02			A STATE OF THE STA
Sponge		_		Sponge 2	Xo	LR		M
Hydroid				Hydroid	20	R		7
Octocoral)	Octocoral	02	OR.	OR	1 4
Stony Coral				Stony Coral	1. 1	100		
Tunicate			,	Tunicate	0.0		LI	
Bare Hard Substrate	!	:		Bare Hard Substrate	UP	1 60		
other	<u> </u>			otherDYVAZOIN	3 5		015	(
D: 107 LOZ Total Mus	t = 100%	<u> </u>		Total Mus	it = 100%	<u> </u>		-
Quad Label: Sample Name or #	1. 15	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)	Quad Label: Sample Name or #	15	List macroalga List every cora ~and coral con	colony	% cover or max siz (cm)
Max Relief (cm)	10/3	To a	1.	Max Relief (cm)	100 /	Och	Ochy	7, <
Max Sediment Depth (cm)	18:21	,	4	Max Sediment Depth (cm)	0 V	3 CONTA		Ĭ
Sessile Benthos	% Cover			Sessile Benthos	% Cove	· Asia	(1000	29
Sediment- (circle all: sand shell mud)	30.15			Sediment- (circle all: sand shell mud)	10 V		Oil W	
Macroalgae- Fleshy+Calcareous	02	<u> </u>		Macroalgae- Fleshy+Calcareous	2 V S		(1.D)	3
Turf- algae+cyanobacteria (circle all: g r b)	83			Turf- algae+cyanobecteria (circle all: g r (b))	309)	LV,	L)(
Encrusting Red Algae	0.5	o ac	4	Encrusting Red Algae	14	(12	18	4
Sponge	30	OP Fant	1-15	Sponge	00	on	01	3 9
	\(\frac{1}{2}\)	12	[[[]	Hydroid	2	P Or	CH	9
Hydroid								
Hydroid Octocoral	(0	on-	14	Octocoral	10.7		<u> ()(</u>	γ_i

Standard Abbreviations: and abbreviation formats

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Bryo

Bare Hard Substrate

09

Tunicate

Total Must = 100%

Total Must = 100%

Macroalqae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caut, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarq...

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Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Bare Hard Substrate

BNO

M-D

14,0

other MMW

Other-includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora, sp., Mollusca-sessile, Seagrass, Zoanthid.

<u>Funicate</u>

Project Name	P	roi	ect	Na	ame
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Site Name / Transect Name

Date

Data Collector

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	12.	
	0	
į	NO NIS	
,	10.	

Quad Label: Sample Name or #	.j	3/4	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	יט	0		-
Max Sediment Depth (cm)	ŊΦ	B		
Sessile Benthos	% C	_		
Sediment (circle all: sand) shell mud)	B	100		
Macroalgae- Fleshy+Calcareous				
Turf-algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicate			k	
Bare Hard Substrate				
other				
Total Musi	- 10	30/	<u> </u>	

Quad Label: Sample Name or #		% cover or max size (cm)
Max Relief (cm)		
Max Sediment Depth (cm)		
Sessile Benthos	% Cover	
Sediment- (circle all: sand shell mud)		
Macroalgae- Fleshy+Calcareous		
Turf-algae+cyanobacteria (circle all: g r b)		
Encrusting Red Algae		
Sponge		
Hydroid		ļ. 1
Octocoral		 <u> </u>
Stony Coral		
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other		
· ·		-

Quad Label: Sample Name or #		List macroalgae Genus % List every corat colony ~and corat condition(s)	% cover or max size (cm)
Max Relief (cm)	200		
Max Sediment Depth (cm)			
Sessile Benthos	% Cover	Ν.	
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			ļ
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			1144
other			<u> </u>

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
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Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			ļ
Encrusting Red Algae .	;·		
Sponge			
Hydroid			-
Octocoral			
Stony Coral	ļ		<u> </u>
Tunicate			<u> </u>
Bare Hard Substrate	-		<u> </u>
other			

Total Must = 100%

Total Must = 100%

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Standard Abbreviations: / and abbreviation formats

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		List macroalgae Genus	<u>*</u>	. 1.010			List macroalgae Genus '	K	/OY
luad Label:	55	List every coral colony -and coral condition(s)	" Not	taken	[5]	10	List every coral colony -and coral condition(s)	or may (cm)	
ax Relief (cm)	120		_ No	12.5 taken visibility	0	\bigcirc			
ax Sediment Depth (cm)	11/4			Max Sediment Depth (cm)	5	16	\\	1	
essile Benthos	% Cover			Sessile Benthos	% C	over			
ediment	90/06			Sediment- (circle all: sand shell mud	18	v_{0I}			
lacroalgae- leshy+Calcareous	0			Macroalgae- Fleshy+Calcareous					_
url- algae+cyanobacteria	1			Turf- algae+cyanobacteria	1-				-
circle aff: g (r (b))	0		 	(circle all: g r b)	-	-	<u> </u>	-	-
ncrusting Red Algae	$\frac{O}{O}$		 	Encrusting Red Algae	-	-			
ponge	4		 	Sponge	-				
lydroid	1	 		Hydroid					
Octocoral		73		Octocoral	_				_
itony Coral		Partie. O		Stony Coral					
unicate	0	U Sporob	3	Tunicate					
Bare Hard Substrate	5			Bare Hard Substrate			7		
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mer MOT M	K			other-			1		1
other 4\)01 1	K.			other					+
Total Mus				other Total Mu	st = 100	0%			1
Total Mus		List macroalgae Genus		Total Mu		0% L	List macroalgae Genus		
Total Mus		List macroalgae Genus List every coral colony ~and coral condition(s)	% % cover or max size (cm)	Total Mu	7 F	0%	List macroalgae Genus List every coral cotony -and coral condition(s)		ver k size
Auter		List every coral colony	or max size	Total Mu		*	List every coral colony	or ma	
Total Mus Quad Label: Sample Name or # Max Relief (cm)	5 1	List every coral colony ~and coral condition(s)	or max size	Quad Label: Sample Name or # 2	2 5	*	List every coral colony	or ma	
Total Mus Quad Label: { Sample Name or # Max Relief (cm) Max Sediment Depth (cm)	5 1	List every coral colony ~and coral condition(s)	or max size	Total Mu Quad Label: Sample Name or #	25	*	List every coral cotony -and coral condition(s)	or ma	
Total Mus Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment:	2 100%	List every coral colony ~and coral condition(s)	or max size	Total Mu Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment	2 5 7 10 10 10 10 10 10 10 10 10 10 10 10 10	V U O O O O	List every coral cotony -and coral condition(s)	or ma	
Total Mus Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment- circle all: sand shell mud) Macroalgae-	2 100%	List every coral colony ~and coral condition(s)	or max size	Total Mu Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment (circle all: sand shell muc Macroalgae	2 5 7 10 10 10 10 10 10 10 10 10 10 10 10 10	V U O O O O	List every coral cotony -and coral condition(s)	or ma	
Total Mus Quad Label: \{ Sample Name or #	2 100%	List every coral colony ~and coral condition(s)	or max size	Total Mu Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment (circle all: sand shell muc Macroalgae Fleshy+Calcareous Turf-algae+cyanobacteria	2 9 0 199 % c	V U O O O O	List every coral cotony -and coral condition(s)	or ma	
Total Mus Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment- circle all: sand shell mud) Macroalgae- Fleshy+Calcareous Furf- algae+cyanobacteria	2 100%	List every coral colony ~and coral condition(s)	or max size	Total Mu Quad Label: Sample Name or # 2 Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment (circle all: sand shell muc Macroalgae Fleshy+Calcareous	2 9 0 199 % c	V U O O O O	List every coral cotony -and coral condition(s)	or ma	
Total Mus Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment: circle all: sand shell mud) Macroalgae- leshy+Calcareous Turf- algae+cyanobacteria circle all: g r b)	2 100%	List every coral colony ~and coral condition(s)	or max size	Total Mu Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment (circle all: sand shell muc Macroalgae Fleshy+Calcareous Turf-algae+cyanobacteria	2 9 0 199 % c	V U O O O O	List every coral cotony -and coral condition(s)	or ma	
Total Mus Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment- circle all: sand shell mud) Macroalgae- Fleshy+Calcareous	2 100%	List every coral colony ~and coral condition(s)	or max size	Total Mu Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment (circle all: sand shell much Macroalgae-Fleshy+Calcareous Turf-algae+cyanobacteria (circle all: g r b)	2 9 0 199 % c	V U O O O O	List every coral cotony -and coral condition(s)	or ma	
Total Mus Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sediment: Circle all: sand shell mud) Macroalgae Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r b) Encrusting Red Algae	2 100%	List every coral colony ~and coral condition(s)	or max size	Total Mu Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment (circle all: sand shell much Macroalgae-Fleshy+Calcareous Turt-algae+cyanobacteria (circle all: g r b) Encrusting Red Algae	2 9 0 199 % c	V U O O O O	List every coral cotony -and coral condition(s)	or ma	
Total Mus Quad Label: Sample Name or # fax Relief (cm) Max Sediment Depth (cm) Sediment- circle all: sand shell mud) Macroalgae- leshy+Calcareous furf- algae+cyanobacteria circle all: g r b) Encrusting Red Algae Sponge	2 100%	List every coral colony ~and coral condition(s)	or max size	Total Mu Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment: (circle all: sand shell much Macroalgae-Fleshy+Calcareous Turf-algae+cyanobacteria (circle all: g r b) Encrusting Red Algae Sponge	2 9 0 199 % c	V U O O O O	List every coral cotony -and coral condition(s)	or ma	
Total Mus Quad Label: ample Name or # fax Relief (cm) fax Sediment Depth (cm) dessile Benthos Sediment- circle all' sand shell mud) facroalgae- relieshy+Calcareous ruf- algae+cyanobacteria circle all: g r b) Encrusting Red Algae Sponge Hydroid Octocoral	2 100%	List every coral colony ~and coral condition(s)	or max size	Total Mu Quad Label: Sample Name or # 2 Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment (circle all: sand shell muc Macroalgae-Fleshy+Calcareous Turf-algae+cyanobacteria (circle all: g r b) Encrusting Red Algae Sponge Hydroid Octocoral	2 9 0 199 % c	V U O O O O	List every coral cotony -and coral condition(s)	or ma	
Total Mus Quad Label: jample Name or # fax Relief (cm) Max Sediment Depth (cm) jessile Benthos Gediment- circle all: sand shell mud) Macroalgae- leshy+Calcareous furf- algae+cyanobacteria circle all: g r b) Encrusting Red Algae Sponge Hydroid Octocoral Stony Coral	2 100%	List every coral colony ~and coral condition(s)	or max size	Total Mu Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment: (circle alt: sand shell muc Macroalgae Fleshy+Calcareous Turf-algae+cyanobacteria (circle alt: g r b) Encrusting Red Algae Sponge Hydroid Octocoral Stony Coral	2 9 0 199 % c	V U O O O O	List every coral cotony -and coral condition(s)	or ma	
Total Mus Quad Label: Sample Name or # fax Relief (cm) Max Sediment Depth (cm) Sediment Depth (cm) Sediment Sediment or # Macroalgae- Teleshy+Calcareous Turf- algae+cyanobacteria circle all: g r b) Encrusting Red Algae Sponge Hydroid Octocoral Stony Coral	2 100%	List every coral colony ~and coral condition(s)	or max size	Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment (circle alt: sand shell much Macroalgae-Fleshy+Calcareous Turf-algae+cyanobacteria (circle alt: g r b) Encrusting Red Algae Sponge Hydroid Octocoral Stony Corat Tunicate	2 9 0 199 % c	V U O O O O	List every coral cotony -and coral condition(s)	or ma	
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Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleacting, Coral Stress Index #0 1 2 3

Other-includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

BA

Date

Data Collector

	-		List mage also a Committee	9/						1.1
Quad Label: Sample Name or #	5	40		% cover or max size (cm)	Quad Label: Sample Name or # 35				% cov or max (cm)	
Max Relief (cm)	ŋ	0			Max Relief (cm)	Ö	1)			
Max Sediment Depth (cm)	13	16			Max Sediment Depth (cm)	17	13			
Sessile Benthos	<u>% C</u>	<u>DVer</u>			Sessile Benthos	% C	over			
Sediment- (circle all/sand shell mud)	100	10	g -		Sediment- (circle all: sand shell mud)	W.	ΙŊ			
Macroalgae Fleshy+Calcareous					Macroalgae- Fleshy+Calcareous	:				
Turf-algae+cyanobacteria (circle all; g r b)					Turf- algae+cyanobacteria (circle all: g r b)					
Encrusting Red Algae					Encrusting Red Algae					
Sponge					Sponge					
Hydroid	_				Hydroid					
Octocoral				· .	Octocoral					
Stony Coral					Stony Coral					
Tunicate					Tunicate			1		
Bare Hard Substrate					Bare Hard Substrate	_		1		
other				1	other					
Total Must	= 10	2%			Total Must =	= 10¢)% ~	5		
			List macroalgae Genus %		- 4.1	5	U d	List macroalgae Genus %	% co	ver
Quad Label: // Sample Name or #	5	-2	List every coral colony -and coral condition(s)	or max size (cm)	Quad Label:		M	List every corat colony ~and corat condition(s)	or ma	x size
Max Relief (cm)	0	0	• • • • • • • • • • • • • • • • • • • •		Max Relief (cm)	9	0			
Max Sediment Depth (cm)	[1]	13	•	37,144	Max Sediment Depth (cm)	13	19			
Sessile Benthos	<u>% C</u>	over			Sessile Benthos	_	over			
(circle all: sand shell mud)	Va)4			Sediment- (circle all sand shell mud)	$ \omega $	108)		
Macroalgae- Fleshy+Calcareous		!			Macroalgae Fleshy+Calcareous					
Turf-algae+cyanobacteria (circle all: g r b)					Turf- algae+cyanobacteria (circle all: g r b)					
Encrusting Red Algae	ļ				Encrusting Red Algae .					
Sponge			. /		Sponge					
Hydroid	_	1			Hydroid				ļ	
Octocoral		-		:	Octocorat				ļ	
Stony Coral					Stony Coral					
	 —								-1	[
Tunicate		!			Funicate			:		
Tunicate Bare Hard Substrate		and the same of th	V							
		gala i deliferazione	V		Tunicate					i i

Standard Abbreviations: and abbreviation formats

Total Must = 100%

Total Must = 100%

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspt

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Coral condition: W=white disease(s), O=other disease(s), B=bleacthing, Coral Stress Index # 0 1 2 3

Date

Data Collector

1D: 131/32			List macroalgae Genus ?	· · · · ·
Quad Label: A Sample Name or #) .	~ 5 L.D	List every coral colony and coral condition(s)	or max size (cm)
Max Relief (cm)	0		() NOW	7×
Max Sediment Depth (cm)	3	3	1) WP	ι
Sessile Benthos	<u>% C</u>	over	(° tóv)	1.1
Sediment- (circle all: sand shell mud)	q_{φ}	86	84 0	3
Macroalgae Fleshy+Calcareous	0	2	0 10%	i d
Turf-algae+cyanobacteria (circle all: (g) (r) (b))	1	3	o volv	15
Encrusting Red Algae	1	1	0100	11
Sponge	٥	3	01917	
Hydroid	0		0 400	3 5
Octoooral	1	2	Lapto.	Ħ
Stony Coral	Û		1000 / 000 / 00 / 00 / 00 / 00 / 00 / 0	1 clan 12
Funicate	Ü	0	Chloss.	7
Bare Hard Substrate	1	0	(Clytoll	8
other	ų)		1.(%)	24
bryozoan		1	CHTY.	1

Quad Label: Sample Name or #	77.	ک	List macroalg List every co ~and coral co			over ax size
Max Relief (cm)	3	2	2014	Dichy	Ŋ,	Ĺ
Max Sediment Depth (cm)	3	3		DOLLY		2
Sessile Benthos	% Cc	ver				
Sediment (circle all: sand shell mud)	P88	GB	010		W	2
Macroalgae Fleshy+Calcareous	2	3	01_		4/	
Turf-algae+cyanobacteria (circle all: (g) r (b))	1		01		31	
Encrusting Red Algae	1.)	() v		2/3	
Sponge	ľ	0	0 <	BR.	}	2.:
Hydroid	0	0	000/200	OR.	2	lxz
Octocoral	3	Į	OW.Y'	LR	6	41
Stony Coral	3		JMOH!	lesso,	11	38
Tunicate	1	1	Lephon!	whole	•	11
Bare Hard Substrate		0	16 Kor		<u>. </u>	
other		1	Uptan	LAPRE	6	9
Bryo	1	//3			16	:]_
10: 137/13 Jotal Mus	t = 100)%	It ist massach			,

135/136 Mus	= 100%	1 1/1/1	
Quad Label: Sample Name or #	10 155	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10 10	Kraited DICH	1 3
Max Sediment Depth (cm)	13	dith	
Sessile Benthos	% Cover	ON 053 ,	11
Sediment- (circle all: sand shell mud)	-11 0	(x	
Macroalgae- Fleshy+Calcareous	34	DX	4
Turf-algae+cyanobacteria (circle aft: g (r) b)	7/2	DR	
Encrusting Red Algae	911	DR THEIR	15 37
Sponge 53	12-12	Mysell OC	K LIX
Hydroid	00	l wash, a	X
Octocoral	11.5	K. 12 V	43.
Stony Coral	1911	472/10	\mathcal{L}_{σ}
Funicate	00) (30
Bare Hard Substrate	10/10)	41
other VM hik IM	315		£61
BAY			32-

Quad Label: Sample Name or #	5 115	List macroak List every co -and coral o		% cov or max (cm)	
Max Relief (cm)	5 le	CONTAI	. 41		
Max Sediment Depth (cm)	.111	17.84 		2.	
Sessile Benthos	% Cover			1	
Sediment- (circle aff: sand, shell mud)	28 18		()A.		4
Macroalgae Fleshy+Calcareous	30		00 B		2
Turf-algae+cyanobacteria (circle alt: /g /r) (b))		OR	LV	L	48
Encrusting Red Algae .	15 10		UZ		22
Sponge 1	2	1/12	(JVZ.	1.	3
Hydroid	00	(R	0.,	The same	2_
Octocorat	25	W	OR	1	1
Stony Coral	13	LP	LVM	13.	23
Funicate	0 0	UR	LH	ž	5
Bare Hard Substrate	15 5	(16-	OX.		21 X
other-BNO BNO	1/2)				
Cloud sollin	1 / 5				

Standard Abbreviations: and abbreviation formats

= 100% \(\sum \subseteq \ Total Must = 100% Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Ptexaurella=Ptla, Pseudoptexaura=Pspt Stony Corat: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int... Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3 PREPOIL

O Hodelos s. +1

Other-includes: Anemone, Annelid-sessile, Bamade, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

FURTHER AND STUME POC

GR	Project Name					Site	Nam	e/	Transect Name						
£ 5	Date					Data	a Col	lec	tor .						
80 -2.	10: 139		_					_							
La La	Quad Label: Sample Name or #	ن ا	- 1	List macroalga List every cora and coral cor	al colony	or max (cm)			Quad Label: Sample Name or #			List macroalgae List every coral -and coral con	colony	or max (cm)	
S S S	Max Relief (cm)	3	_	12 ch				ŀ	Max Relief (cm)	\perp					
25	Max Sediment Depth (cm)					1		ŀ	Max Sediment Depth (cm)						
2 N	Sessile Benthos	% Cov	eτ						Sessile Benthos	% Cc	ver				
400	Sediment- (circle all: sand shell mud)	S &	3						Sediment- (circle all: sand shell mud)						
200	Macroalgae- Fleshy+Calcareous	2		:					Macroalgae- Fleshy+Calcareous						
Ċ	Turf-algae+cyanobacteria (circle aff: g r b)	1		m		2			Turf-algae+cyanobacteria (circle all: g r b)					reserve to the second	
UMNINI	Encrusting Red Algae	P	4	(ne		3,12			Encrusting Red Algae						
2	Sponge 12	P		W		118			Sponge						
\geq	Hydroid	1		W		1/9			Hydroid						
	Octocoral	3		LR		H			Octocoral						
	Stony Coral	3		ML		211/5	7		Stony Coral						
	Tunicate	١		120-10		3			Tunicate						
	Bare Hard Substrate	15		·OK		4×7	1		Bare Hard Substrate						
ر چ خ	otherSCISan	5		OK		5			other						
1 10	(Me		7	6R		0							<u> </u>		
1	Total Must	= 1009	6					•	Total Must	= 100	%				
	Quad Label: Sample Name or #			List macroalg List every cor ~and coral co	al colony		ver x size		Quad Label: Sample Name or #			List macroalga List every cora -and coral cor	l colony	or may (cm)	
	Max Relief (cm)					<u>. </u>			Max Relief (cm)						· ·.
	Max Sediment Depth (cm)					<u> </u>			Max Sediment Depth (cm)	Ĺ	_				
	Sessile Benthos	% Co	ver						Sessile Benthos	% C	over				
	Sediment- (circle all: sand shell mud)								Sediment- (circle all: sand shell mud)						
	Macroalgae- Fleshy+Calcareous								Macroalgae- Fleshy+Calcareous				·		5
	Turf-algae+cyanobacteria (circle all: g r b)				<u> </u>				Turf- algae+cyanobacteria (circle all: g r b)		L				
	Encrusting Red Algae				/				Encrusting Red Algae .				ļ		
:	Sponge				:				Sponge						
	Hydroid								Hydroid						
	Octocorat	,							Octocoral	L			! 		
	Stony Coral								Stony Coral	L					ļ
	Tunicate								Funicate .						
	Bare Hard Substrate					***************************************	}		Bare Hard Substrate						<u></u>

Standard Abbreviations: and abbreviation formats

Total Must = 100%

other-.

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Other-includes: Anemone, Annelid-sessile, Bamacle, Bryozoan, Millepora, sp., Mollusca-sessile, Seagrass, Zoanthid.

Total Must = 100%

other-.

Data Collector

Quad Label:		1	List macro: List every or -and coral	% cover or max size (cm)		
Max Relief (cm)	8	g	bucky	160x2 15.2	3	(3
Max Sediment Depth (cm)	{	1	(sto	16hy 10pm	3 <u>t</u> 7	30
Sessile Benthos	%	Cover	Pertu	(fbj. A	8,3	16
Sediment- Town (circle all sand shell mud)	60	25	Oculan	160,0 A	(0.1.3)	lint
Macroalgae- Fleshy+Calcareous	3	5		1665:1		20
Furf-algae+cyanobacteria (circle all: g r b)	30	GI		Ocalina		3
Encrusting Red Algae	3	0		out		CLI
Sponge	ħ	100.2		Dicky		5
Hydroid	0	1)		STP-quality quality	1	
Octocoral	1	3		man		
Stony Coral		-				
Tunicate	0	U				
Bare Hard Substrate		3				
other 6511	١	and of the last of				
20,000						

Quad Label: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	1/2/0	List macroalgae Genus List every coral colony -and coral condition(s)	or max size
Max Relief (cm)	46	leatur ledor	13 51
Max Sediment Depth (cm)	32	icaruh Declar	10 10x7
Sessile Benthos	% Cover	leatoh DEUIS	n Axid Dem
Sediment- (orde all: sand shell mud)	(to 30)	1000 / 16/0 V	ag 16
Macroalgae- Fleshy+Calcareous	23	Hor V Lepto V	1/27
Turf-algae+cyanobacteria (circle afl: g r (b))	32 5,7	, , , , , , , , , , , , , , , , , , , ,	3 1
Encrusting Red Algae	7.4	Outh Dish	1d.A 3.
Sponge	0 [Dicty	1
Hydroid	011		
Octocoral	3 2		
Stony Coral	1		
Tunicate	UV		
Bare Hard Substrate	0 1		
other	U		

Total Must = 100%

Total Must	= 100%		·
Quad Label: 37,	5 35		% cover or max size (cm)
Max Relief (cm)	7 13	outer ording	crylg. 5
Max Sediment Depth (cm)	1 4	Outen ording	3 3
Sessile Benthos	% Cover	replace or line	10 7
Sediment- (circle all (sand (shell mud)	30 15	18080U Ocal.	7 4
Macroalgae- Fleshy+Calcareous	3	18 plat Della	•
Turf-algae+cyanobacteria (circle att: g r (b))	58 75	Herry Owlan	Jent Kmy
Encrusting Red Algae		lephor How h:	
Sponge	1.1	Day Legral	2 13
Hydroid	1 0	leptov	100
Octocoral	2 2	100	700
Stony Coral	12	18010 V	90
Tunicate	0	Dicky	سينس
Bare Hard Substrate	しら	Say	
other 5 Combu			
other583NUS-	1		

Quad Label: 3	5 30	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max siz (cm)
Max Relief (cm)	1	OLU NE NO	4
Max Sediment Depth (cm)	7	Ocular ros	14
Sessile Benthos	% Cover	out in Mo	5
Sediment- (circle all: sand shell mud)	C	acid in 16	3
Macroalgae- Fleshy+Calcareous	3:	Derlinks	9
Turf-algae+cyanobacteria (circle all: g r b))	37:	Durm	
Encrusting Red Algae .		orlive.	
Sponge	9	legion	7.
Hydroid		401V	9
Octocoral	2	101V	\mathcal{W}
Stony Coral	2	Dity/)
Tunicate)		
Bare Hard Substrate	017		
other. Ses www.			
_			

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Total Must = 100% Total Must = 100% Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarq Octocoral: Genus of each colony = Genu: Gorq, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Pila, Pseudoptexaura=Pspt Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

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Date

Data Collector

(2)			-
Quad Label:	Mary	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	2		
Max Sediment Depth (cm)	2		
Sessile Benthos	% Cover		
Sediment- (circle all; sand shell mud)	277		
Macroalgae- Fleshy+Calcareous	0		
Turf-algae+cyanobacteria (circle all: g (r)b)			
Encrusting Red Algae	2	Depto	7
Sponge	4	lepto	16
Hydroid	0	O. robusta	5
Octocoral	1	Orrobusta	2
Storry Coral)	O, nibista 2	4
Tunicate	1	0. robustax	5
Bare Hard Substrate	2.	0. robustax	13
otherWUVW		O.robusla	4
Total Mus	1 = 100%		

K.C.	1 2	tiet en en en en en en en en en	-
Quad Label: /// Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	7		
Max Sediment Depth (cm)	3	3 don tred lepto	4
Sessile Benthos	% Cover	Puple with 18 14	9
Sediment- (circle all (sand) shell mud)	88	Durply With WITH	6
Macroalgae- Fleshy+Calcareous	O_{\perp}	Lipto	22
Turf-algae+cyanobacteria (circle all: g (r/(b))	2	lipto	31 ³
Encrusting Red Algae		Lépto	39
Sponge	2	, robusta ×3	
Hydroid	0	October	tf
Octocoral	2	6-10basto X8	3
Stony Coral		O. Holotesta	2
Funicate	الم المالية	O mbusta	5
Bare Hard Substrate	2	C. robus)	4
other NOVY		avobush	17
		O. rabista	10

Total Must = 100%

i otal Musi	= 100%		
Quad Label: —	5.	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size : (cm)
Max Relief (cm)	.5_		
Max Sediment Depth (cm)	27	O. rubustas) `
Sessile Benthos	% Cover	送 pho red	12
Sediment- (circle all sand shell mud)	88	t darksted	
Macroalgae- Fleshy+Calcareous	Ō	the day ned	4
Turf- algae+cyanobacteria (circle all: g(r)(b))		ye leptored	
Encrusting Red Algae	2	# 10818 1cd	
Sponge	2	Titanidum Lilli	4
Hydroid	j	Tranideum,	4
Octocoral	2	THaniduum	7
Stony Coral	1	Titaniduum	4
Tunicate	\Diamond	Thundium	9
Bare Hard Substrate	3	Manidum	6
other		THandum	2
		THankleum	3

Quad Label: 3						
Max Relief (cm)	3.	-		-74		
Max Sediment Depth (cm)	6					
Sessile Benthos	% Cover	,		ì		
Sediment (circle all: sand shelt mud)	88	:				
Macroalgae Fleshy+Calcareous	0	: 		_		
Turf- algae+cyanobacteria (circle all: g (b)	(
Encrusting Red Algae		Friandum	3			
Sponge	3	Por ple Concil	militum	7.		
Hydroid	0	Purple Leptol	15 Tita	in d		
Octocoral		lesto	52			
Stony Coral		Coulina 30x3	2			
Tunicate	,	Oculinasof	·			
Bare Hard Substrate	2	Ochra Spr	3			
other-2000 A Paral	1					
1/10/11/						

Total Must = 100%

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Total Must = 100%

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarq...

Octocoral: Genus of each colony = Genu: Gorq, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Pila, Pseudoptexaura=Pspt
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3



r toject Name	1	<u> </u>	<u></u>		<u> </u>	Name	transect Name	\	10	• •
Date (6/2	3/		``	_	Data	a Colle	ector Q P			116
	7							}		1
Quad Label: ()	Į		List macroalga List every cora -and corat co	al colony	% cov or max (cm)	•	Quad Label:	13	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)		1	HUDIN 1	of utl	13	31	Max Relief (cm)	30	407, H/607, V	95 3
Max Sediment Depth (cm)	4	3	1941	foto th	2	7	Max Sediment Depth (cm)	24	14672 H.	6 2
Sessile Benthos		over	1601/	sprot	21		Sessile Benthos	% Cover	18072 V	1/1) a.D
Sediment- (circle all, sand shell mud)	74	86	40/01	In V		35	Sediment- (circle all: sand) shell mud)	70.96	telesto	12)
Macroalgae- Fleshy+Calcareous		3		1897		5.6	Macroalgae- Fleshy+Calcareous	n	V 560)	V : 3
Turf-algae+cyanobacteria (circle att: g r (b,)		5		102 V		24 6	Turf- algae+cyanobacteria (circle all: g r b)	35	Teste V	20
Encrusting Red Algae			1	Jarev		33	Encrusting Red Algae	0		,
Sponge			- Parameter	14111		6	Sponge	V		
Hydroid			:	Wicky		3	Hydroid			
Octocoral	0	6					Octocorat	32		
Stony Coral	,		9				Stony Coral	O_{\perp}		
Tunicate			<u> </u>				Tunicate	U		
Bare Hard Substrate							Bare Hard Substrate	1 .		
other							other	0		
			İ							
Total Must	= 10	0%					Total Must	= 100%		
Quad Label:		3	List macroals List every con ~and coral co	al colony	% col		Quad Label:	b 3	List macroalgae Genus 9 List every coral colony -and coral condition(s)	6 % cover or max siz (cm)
Max Relief (cm)	j.)	1	LAPTO V	16851	35	P	Max Relief (cm)	00	140/10 140/10	
Max Sediment Depth (cm)	Š	14	Laply	İ	13	35	Max Sediment Depth (cm)	3:2	14070	3
Sessile Benthos	1-	over	1-6/10/		73	9.5	Sessile Benthos	% Cover	1 Libi	1 30
Sediment- (circle all:sand shell mud)	97	IG\	ptov		30		Sediment- (circle all: san) (shell-mud)	87.97		
Macroalgae- Fleshy+Calcareous	_		HOPTO	1	124		Macroalgae- Fleshy+Calcareous			<u> </u>
Turf- algae+cyanobacteria (circle all: g r b)	_	3			30)		Turf- algae+cyanobacteria (circle all: g r b)			1
Encrusting Red Algae	ļ.,	1			<u> </u>		Encrusting Red Algae .			1
Sponge	5				ļ		Sponge			
Hydroid	 , ,				<u> </u>		Hydroid			_
Octocoral	14	5			<u> </u>		Octocoral	13		
		£	,			,	Stony Coral			ĺ
Stony Coral	-	-			1					
Stony Coral Tunicate			7700.0				Tunicate	69		
		f t					Tunicate Bare Hard Substrate	8	1	· ·
Tunicate			,		- Company of the Comp			2	í	t ,
Tunicate Bare Hard Substrate	st = 10	00%			the second state of the state o		Bare Hard Substrate	2	í	***

and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoptexaura=Pspt Stony Corat: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int... Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other-includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Date

Data Collector

Quad Label: Sample Name or #	40	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3	leptu	
Max Sediment Depth (cm)	3	1	8
Sessile Benthos	% Cover		24
Sediment- (circle all: sand shell mud)	art		I D
Macroalgae- Fleshy+Calcareous		a survival and a surv	
Turf-algae+cyanobacteria (circle all: g r b)			15
Encrusting Red Algae		<u> </u>	3
Sponge	: <u> </u>		-
Hydroid	1	:	
Octocoral	S.		
Stony Coral	7		
Tunicate		440	and the same
Bare Hard Substrate	1		
other			
Total Mus	-		-

Quad Label: \(\) Sample Name or #	5	List macroalgae Genus 9 List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	1900V	13
Max Sediment Depth (cm)		<u> </u>	19
Sessile Benthos	% Cover	Y	22
Sediment- (circle all: sand) shell mud)	75		32
Macroalgae- Fleshy+Calcareous	5		8
Turf- algae+cyanobacteria (circle all: g r (b))	12	<u> </u>	5
Encrusting Red Algae	·	160to V	93
Sponge		Diety	3
Hydroid			
Octocorat	5		
Stony Coral			
Tunicate			
Bare Hard Substrate	3	<u>'</u>	
other	:		
Total Musi		<u> </u>	

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)		:	
Max Sediment Depth (cm)			
Sessile Benthos	% Cover		The state of the s
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous	1	:	
Turf- algae+cyanobacteria (circle all: g r b)		a va	
Encrusting Red Algae		1	
Sponge			
Hydroid			<u> </u>
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	١		<u> </u>
other			<u> </u>

i otal Must	- 10070		<u> </u>
Quad Label: Sample Name or #			% cover or max sizem)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos	% Cover		
Sediment- (circle all; sand shell mud)		!	
Macroalgae- Fleshy+Calcareous_			
Turf- algae+cyanobacteria (circle all: g r b)		3	
Encrusting Red Algae .		,	
Sponge			
Hydroid		·	
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate		:	
other			
	1 :		,

Total Must = 100%

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sard Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Ptla, Pseudoptexaura=Pspt Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int... Coral condition; W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Standard Abbreviations: and abbreviation formats

Bare Hard Substrate

other-

0

Total Must = 100%

Total Must = 100%

Acroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg

Octooral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoptexaura=Pspt

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Bare Hard Substrate

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Quad Label:

Max Sediment Depth (cm)

% Cover

Sample Name or #

Sessile Benthos...

Max Relief (cm)

Quad Label:

Max Sediment Depth (cm)
Sessile Benthos...

% Cover

Sample Name or #

Max Relief (ch

List macroalgae Genus % //% cover

(cm)

List every coral colony

and coral condition(s)

Date

Data Collector

or max size

(cm)

List macroalgae Genus % % cover

List every coral colony

and coral condition(s)

(circle all: sand shell mud)	40			(circle all; sand shell must)	V/51		
Macroalgae- Fleshy+Calcareous				Macroalgae Fleshy+Calcareous	VQ	,	
Turf- algae+cyanobacteria	A			Turf- algae+cyanobacteria	X	:	
(circle all: g r b)	-W-		<u> </u>	(circle all: g r b)	X	\ · · · · · · · · · · · · · · · · · · ·	
Encrusting Red Algae	0			Encrusting Red Algae	/ 4		
Sponge	()	Cepto V	12	Sponge)		
Hydroid	Ò	, Y		Hydroid	Ö		
Octocoral				Octocoral			United States
Stony Coral	0		***************************************	Stony Coral	0		
Tunicate	0		111111111111111111111111111111111111111	Tunicate	\circ		
Bare Hard Substrate	()			Pare Hard Substrate	5		
other				other			
					,		
Total Must	= 100%			Total Must	= 100%		
Quad Label:	2	List macroálgae Genus % List every coral colony	% cover or max size	Quad Label:	in the sp	List macroalgae Genus % List every coral colony	% cover or max siz
Sample Name or #	1.2	~and coral condition(s)	(cm)	Sample Name or #		~and coral condition(s)	(cm)
Max Relief (cm)	4	DICAM	1 :	Max Relief (cm)			-
Max Sediment Depth (cm)	3			Max Sediment Depth (cm)		÷	
Sessile Benthos	% Cover			Sessile Benthos	% Cover	3	
Sediment- (circle all: sand shell mud)	90			Sediment- (circle all: sand shell mud)	ń	0	
Macroalgae Fleshy+Calcareous	1			Macroalgae- Fleshy+Calcareous		÷	
Turf- algae+cyanobacteria (circle all: g r b)	0			Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae				Encrusting Red Algae .			
Citio do inigir to di ingula	1		 		1		İ
Sponge	1/2			Sponge	1	·	
Hydroid	V	1 1 1 1	1	Hydroid			
Octocoral	 Ž)	LADY		Octocoral	:		
Stony Coral	Q.		<u></u>	Stony Coral			
Tunicate	0			Tunicate	1		1
Bare Hard Substrate	 \			Bare Hard Substrate	ļ .		
other	11		<u> </u>	other	<u> </u>	`	
Total Mus Standard Abbreviations: and abbreviation formals	Macroalg			Total Musa, Bryopsis, Bryothamnion, Caul, ept, Plex except Pseudopterog			
and books trouble totalials	- COUNTRIE	Contra or calcin colony ~ t	CO14, L	-Par inverse in accommended	STAIRS TOPL	I INCAGUITANO I NO, I SECUCIO	ACAGGIG TO SE

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cay, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0_1 2_3

Project	Name	
Date	11/	10

Site Name / Transect Name

Data Collector

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)	7		
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)	95		
Macroalgae- Fleshy+Calcareous	2		
Turf-algae+cyanobacteria (circle aff: g r b)	0		
Encrusting Red Algae	U		
Sponge			
Hydroid	0		
Octocoral	C'		
Stony Coral	7		
Tunicate	,		
Bare Hard Substrate	1		
other 30 40 0.	s É		

Quad Label: Sample Name or #) 5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	15	OCOT NEWS	
Max Sediment Depth (cm)	5	Coto?	V
Sessile Benthos	% Cover	real ording	
Sediment- (circle all: sand/shell mud)	(-,0)	11 0 20 44	
Macroalgae Fleshy+Calcareous	0_	11 Owline	
Turf- algae+cyanobiacteria (circle all: g r /b))	5		
Encrusting Red Algae	0 .		
Sponge	3		
Hydroid	0		
Octocoral	1		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	27		
other \$ 05 5 5 6 6 8	3.		
()	,		

Total Must = 100%

Quad Label: Sample Name or #	J	, , , , , ,	% cover or max size (cm)
Max Relief (cm)	2		
Max Sediment Depth (cm)	15		
Sessile Benthos	% Cover		
Sediment- (circle all; sand shell mud)	97		
Macroalgae- Fleshy+Calcareous	0		
Turf-algae+cyanobacteria (circle all: g r (b))	1		
Encrusting Red Algae	\mathcal{L}^{j}		
Sponge	ξ.)		
Hydroid	0		
Octocoral	D		
Stony Coral	0		
Tunicate	0		
-Bare Hard Substrate		,	
other (e)	1		

Quad Label: Sample Name or #	725	-and coral condition(s)	or max size (cm)
Max Relief (cm)	15	smas Oculina	1
Max Sediment Depth (cm)	6		
Sessile Benthos	% Cover	Sarg	<u> </u>
Sediment- (circle all: sand shell mud)	60	<i></i>	
Macroalgae Fleshy+Calcareous	A		
Turf- algae+cyanobacteria (circle all: g r (b))	3		
Encrusting Red Algae	3		
Sponge	1		
Hydroid	2		
Octocoral	0.		
Stony Coral			
Funicate	0		<u> </u>
Bare Hard Substrate	26		
other 13/10 2	2		

Total Must = 100%

Total Must = 100%

Total Must = 100%

tandard Abbreviations: and abbreviation formats Macroalgae: Pool to Genus = Genu or Genus: Avra Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

Octoooral: Genus of each colony = Genu: Gorq, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoptexaura=Pspl

Stony Coral: Genus species of each colony = G spe: A car, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Project Name	ť
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Site Name / Transect Name

Data Collector

riojeci	Hanne	(
Date	17	`

Quad Label: Sample Name or #	\bigcirc	tist macroalgae Genus % tist every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	,5	LCOtu	60
Max Sediment Depth (cm)	3	Sain	5
Sessile Benthos	% Cover)	
Sediment- (circle all sand shell mud)	25		
Macroalgae- Fleshy+Calcareous	5		
Turf-algae+cyanobacteria (circle all: g r (b))	3.		
Encrusting Red Algae	7		
Sponge			
Hydroid	U		
Octocoral			
Stony Coral	C^{γ}		
Tunicate	0		
Bare Hard Substrate 54	24		
other- 13 / 7.	5		

Quad Label: \	25	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	15	OR	160
Max Sediment Depth (cm)	10		
Sessile Benthos	% Cover		
Sediment- (circle all; sand shell mud)	96		
Macroalgae Fleshy+Calcareous	0		,
Turf- algae+cyanobacteria (circle all: g r (b))	9		
Encrusting Red Algae	U		
Sponge	0		
Hydroid	0		
Octocoral	D		
Stony Coral	1		
Tunicate	0	·	1
Bare Hard Substrate	()		
other 505 win	1		

JSACE

Total Must = 100%

	_		
Total	Must	=	100%

Quad Label: Name or #	5		% cover or max size (cm)
Max Refief (cm)	9	lept. Sory	35
Max Sediment Depth (cm)	6	Sorn	7
Sessile Benthos	% Cover	"Feleto	6
Sediment- (circle all sand shell mud)	70		
Macroalgae- Fleshy+Calcareous	8		
Turf- algae+cyanobacteria (circle all: g r b))	5		
Encrusting Red Algae			
Sponge	0		
Hydroid	/		
Octocoral	/_		
Stony Coral	0		
Funicate	0		
Bare Hard Substrate	.7		-
other 505 nam	2		
Bryoz	1		

Quad Label:	7.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size ((cm)
Max Relief (cm)	[0]	100%	60
Max Sediment Depth (cm)	5	Souly	(i)
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)	5		
Macroalgae- Fleshy+Calcareous	10		
Turf- algae+cyanobacteria (circle alt: g r (b))	8 44	,	
Encrusting Red Algae .	15		
Sponge	0		
Hydroid	6		
Octocoral	2		
Stony Coral	D		
Tunicate	3		
Bare Hard Substrate	15		
other	0		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Total Must = 100% Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg... Octocoral: Genus of each colony = Genu: Gorq, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Ptla, Pseudoptexaura=Pspt Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cay, P ame, O dff, S rad, S sid, S bou, S hya, S int... Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Project Name ₿	<u>1</u>	Transaz	Site Man	e / Transect Name		USACE SH	
Date 10(2	05		Data Col	lector		ADEL	
Quad Label: 2	7.5	List macroalgae Genus % List every coral colony -and coral condition(s)	or max size	Quad Label: 2	5	List macroalgae Genus % List every coral colony	or max siz
wax Relief (cm)	0	~and coral condition(s)	(cm)	Max Relief (cm)	8	-and coral condition(s)	(cm)
Max Sediment Depth (cm)	4			Max Sediment Depth (cm)	5		
Sessile Benthos	% Cover			Sessile Benthos	% Cover		<u> </u>
Sediment- (Circle all: sand shell mud)	QΩ			Sediment- (circle all: sand shell mud)	94		
Macroalgae-				Macroalgae-	$\overline{\bigcirc}$	(), robustax	
Fleshy+Calcareous Turf- algae+cyanobacteria	$\overline{\bigcirc}$		-	Fleshy+Calcareous Turl- algae+cyanobacteria	2	<u>O 7 7 3 7 12 7 1</u>	
(circle aff: g r b)	0	() robusta	12	(circle all: g (r)b)			<u> </u>
Encrusting Red Algae	<u> </u>	100034		Encrusting Red Algae	$\frac{)}{\bigcirc}$		<u> </u>
Sponge	ŏ			Sponge	\overline{C}		
Hydroid	0			Hydroid	$\frac{\circ}{\circ}$		
Octocoral	ī			Octocoral			<u> </u>
Stony Coral	0		-	Stony Coral			
Tunicate	()		-	Tunicate	\mathcal{L}		
Bare Hard Substrate				Bare Hard Substrate	2	<u> </u>	ļ
other				otherWO 17M1			
Total Mus	t = 100%	<u> </u>			<u> </u>		
				Total Must	= 100%		
Quad Label: 🔿		List macroalgae Genus %	*		= 100%	List macroalgae Genus %	ž
Quad Label: 2	25		% cover or max size (cm)	Quad Label: /Sample Name or #	= 100%	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max siz (cm)
ample Name or #	25	List macroalgae Genus % List every coral colony	or max size	Quad Label:	1= 100%	List every coral colony	or max siz
Ample Name or #	25	List macroalgae Genus % List every coral colony	or max size	Quad Label: 5	20	List every coral colony	or max siz
,	25	List macroalgae Genus % List every coral colony -and coral condition(s)	or max size	Quad Label: Sample Name or #	10	List every coral colony -and coral condition(s)	or max siz
Ample Name or # Max Relief (cm) Max Sediment Depth (cm)	25 21 3 % Cover	List macroalgae Genus % List every coral colony -and coral condition(s)	or max size	Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm)	10	List every coral colony -and coral condition(s)	or max siz
Ample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessite Benthos Sediment-	25 21 3 ** Cover 89	List macroalgae Genus % List every coral colony -and coral condition(s)	or max size	Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment	[0 5 % Cover	List every coral colony -and coral condition(s)	or max siz
Ample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment- (circle all: sand shell mud) Macroalgae- Fleshy+Calcareous Turf-algae+cyagobacteria	25 21 3 ** Cover 89	List macroalgae Genus % List every coral colony -and coral condition(s)	or max size	Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment (circle all sand shell mud) Macroalgae Fleshy+Calcareous Turf- algae+cyanobacteria	10 5 % Cover	List every coral colony -and coral condition(s)	or max siz
Ample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment- (circle all: sand shell mud) Macroalgae- Fleshy+Calcareous Turf-algae+cyanobacteria (circle all: g (f	25 21 3 % cover 89	List macroalgae Genus % List every coral colony -and coral condition(s)	or max size	Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment (circle all sand shell mud) Macroalgae Fleshy+Calcareous Turi- algae+cyanobacteria (circle all: g r (b))	10 5 % Cover	List every coral colony -and coral condition(s)	or max siz
Ample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessite Benthos Sediment- (circle all: sand shell mud) Macroalgae- Fleshy+Calcareous Turf- algae+cyapobacteria (circle all: g (f b) Encrusting Red Algae	25 21 3 ** Cover 89	List macroalgae Genus % List every coral colony -and coral condition(s)	or max size	Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment (circle all sand shell mud) Macroalgae Fleshy+Calcareous Turi-algae+cyanobacteria (circle all: g r (b)) Encrusting Red Algae	10 5 % Cover	List every coral colony -and coral condition(s)	or max siz
Ample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment- (circle all: sand shell mud) Macroalgae- Fleshy+Calcareous Turf-algae+cyanobacteria (circle all: g (s) (b) Encrusting Red Algae Sponge	25 21 3 % COVET 89 0	List macroalgae Genus % List every coral colony -and coral condition(s)	or max size	Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment (circle all sand shell mud) Macroalgae Fleshy+Calcareous Turf-algae+cyanobacteria (circle all: g r (b)) Encrusting Red Algae Sponge	10 5 % Cover	List every coral colony -and coral condition(s)	or max siz
Ample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment- (circle all: sand shell mud) Macroalgae- Fleshy+Calcareous Turf-algae+cyanobacteria (circle all: g (s) b Encrusting Red Algae Sponge Hydroid	25 21 3 % COVET 89 0	List macroalgae Genus % List every coral colony -and coral condition(s)	or max size	Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment: (circle all sand shell mud) Macroalgae Fleshy+Calcareous Turf-algae+cyanobacteria (circle all: g r (b)) Encrusting Red Algae Sponge Hydroid	10 5 % Cover	List every coral colony -and coral condition(s)	or max siz
Ample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment- (circle all: sand shell mud) Macroalgae- Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g (s) b Encrusting Red Algae Sponge Hydroid Octocorat	25 21 3 % Cover 89 0 2 1 0	List macroalgae Genus % List every coral colony -and coral condition(s)	or max size	Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment (circle all sand shell mud) Macroalgae- Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r (b)) Encrusting Red Algae Sponge Hydroid Octocoral	10 5 % Cover	List every coral colony -and coral condition(s)	or max siz
Ample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessite Benthos Sediment- (circle all: sand shell mud) Macroalgae- Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g () b Encrusting Red Algae Sponge Hydroid Octocorat Stony Coral	21 3 * cover 89 0 2 1	List macroalgae Genus % List every coral colony -and coral condition(s)	or max size	Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment (circle all sand shell mud) Macroalgae- Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r (b)) Encrusting Red Algae Sponge Hydroid Octocoral	10 5 % Cover	List every coral colony -and coral condition(s)	or max siz
Ample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment- (circle all: sand shell mud) Macroalgae- Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g f b) Encrusting Red Algae Sponge Hydroid Octocoral Stony Coral	25 21 3 **Cover 89 0 2 1 0	List macroalgae Genus % List every coral colony -and coral condition(s)	or max size	Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment (circle all sand shell mud) Macroatgae Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r (b)) Encrusting Red Algae Sponge Hydroid Octocoral Stony Coral Tunicate	10 5 % Cover	List every coral colony -and coral condition(s)	or max siz
Ample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment- (circle all: sand shell mud) Macroalgae- Fleshy+Calcareous Turf-algae+cyanobacteria (circle all: g () (b) Encrusting Red Algae Sponge Hydroid Octocoral Stony Coral Tunicate Bare Hard Substrate	21 3 * cover 89 0 2 1 0 0 0	List macroalgae Genus % List every coral colony -and coral condition(s)	or max size	Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment sand shell mud) Macroalgae Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r (b)) Encrusting Red Algae Sponge Hydroid Octocoral Stony Coral Tunicate Bare Hard Substrate	0 5 % Cover 92 0 1 0 0 0 0	List every coral colony -and coral condition(s)	or max siz
Ample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment- (circle all: sand shell mud) Macroalgae- Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g (f) b Encrusting Red Algae Sponge Hydroid Octocorat Stony Corat Tunicate	25 21 3 **Cover 89 0 2 1 0	List macroalgae Genus % List every coral colony -and coral condition(s)	or max size	Quad Label: Sample Name or # Max Relief (cm) Max Sediment Depth (cm) Sessile Benthos Sediment (circle all sand shell mud) Macroatgae Fleshy+Calcareous Turf- algae+cyanobacteria (circle all: g r (b)) Encrusting Red Algae Sponge Hydroid Octocoral Stony Coral Tunicate	0 5 % Cover 92 0 1 0 0 0 0	List every coral colony -and coral condition(s)	or max siz

- Long spine porgy - Sand diver - Edning. - Black sta bass - Toad film - iracics

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other-includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Molfusca-sessile, Seagrass, Zoanthid.

Quad Label: Sample Name or #	7,5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)	8		
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell) mud	85		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: (g) (n) (b))	ŀ		
Encrusting Red Algae	0		
Sponge			
Hydroid	0		
Octocoral		Leptoptero !!!!	24cm
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	4		
other Ve Mitid	7	,	
Onp			111111111111111111111111111111111111111

Quad Label: Sample Name or #	15	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	13		
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell injud)	C01		
Macroalgae Fleshy+Calcareous			
Turf-algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			‡
other			<u> </u>

Total Must = 100%

Quad Label: Usample Name or #	12,5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	4		
Max Sediment Depth (cm)	14		
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)	Ŝ		
Macroalgae Fleshy+Calcareous	Ó		
Turf- algae+cyanobacteria (circle all: g r b)	0		
Encrusting Red Algae	0		<u> </u>
Sponge	6		
Hydroid	0		<u> </u>
Octocoral	0	Acenaria Sp	Hem
Stony Coral			
Tunicate	Ó		
Bare Hard Substrate			
other \ (m + 1d	1/		
, -			

Quad Label: 1	ا مر	List macroalgae Genus %	
	40 l	List every coral colony	or max size
Sample Name or #		-and coral condition(s)	(cm)
Max Relief (cm)	14		
Max Sediment Depth (cm)	10		
Sessile Benthos	% Cover		
Sediment- (circle all: sand shet mud	gas		
Macroalgae			
Turf- algae+cyanobacteria (circle alt: (g) (f) (f))	2	an allar per	1
Encrusting Red Algae .	1	100 W 200	t Opini
Sponge	2		
Hydroid	0		
Octocorat	0		
Stony Coral	0	1	
Tunicate	6 7	\ &	
Bare Hard Substrate	L_		
other BVD	2		
Total Mus	t = 100%		i

tandard Abbreviations: and abbreviation formats

Total Must = 100%

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg... Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspt Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int... Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other-includes: Anemone, Annelid-sessile, Bamacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

+ 26 P2 + V2+15 (512)d 9 2405 + 9400 - 94005

+ 1+17 72 + 120001 + 40000 - 90000 -

Proj	ect	Na	me
		140	

Project Name			Site Nam	e l	Transect Name				
Date			Data Coll	iec	tor				•
D: 188					10: 189				•
Quad Label: Sample Name or #	37.5	List macmalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)		Quad Label: Sample Name or #	35	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)	
Max Relief (cm)	13	fruit roll up	-		Max Relief (cm)	10			ı
Max Sediment Depth (cm)	1	Duty.	1		Max Sediment Depth (cm)	3	·		
Sessile Benthos	% Cover	1′			Sessile Benthos	% Cover			
Sediment- (circle all: sand shell (mud)	83				Sediment- (circle all: sand shell (muld)	454			
Macroalgae- Fleshy+Calcareous					Macroalgae- Fleshy+Calcareous	Name of the State			
Turf-algaetcyanobacteria (circle all: (g) (r) (b))	5				Turf- algae+cyanobacteria (circle all: (g (r) (b))	3			
Encrusting Red Algae	2				Encrusting Red Algae	5	-		
Sponge	1				Sponge	L			
Hydroid				i	Hydroid		4 Posto	4	
Octocoral	14.	Leptophero	34		Octocoral	1	Orcain total 14	Part 1	
Stony Coral	1	Oculina sp	2.cm		Stony Coral	1	W mi		,
Tunicate	0	Dailya R 3 1600	1 XELI	n	Tunicate		<u> </u>		
Bare Hard Substrate	1	WATER TOO !	41 /	A	Bare Hard Substrate	2/3	6wling ron	, 2em	اللكانيان
other BUD		pxýpj	bleatu	1	otherVCMiHld	3	· 11 regrotts	410VE	X: 3
Je Mutild					BNO	3			1 1 1 10
10 190 Total Mus	t = 100%	• •			Total Mus	t = 100% .		•	_

Quad Label: Sample Name or #	32.5	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	- New York		
Max Sediment Depth (cm)	U		
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)	80		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobe teria (circle att: g i to b)	2		
Encrusting Red Algae	1		
Sponge	0		
Hydroid	0		
Octocoral	(A)	Valura Sp.	11 cm
Stony Coral		X	2-2
Tunicate	0		
Bare Hard Substrate	9		
other Vernihid	0		
			1

Quad Label: Sample Name or #	30	List macroalgae Genus % List every coral colony -and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	2	Dictyota	
Max Sediment Depth (cm)	.3	· .	
Sessile Benthos	% Cover		
Sediment- (circle all: sand shell mud)	86		
Macroalgae Fleshy+Calcareous	1	Octobusta	3
Turf- algae+cyanobacteria (circle all: g(r) b))	5	doad Or which	
Encrusting Red Algae	1	Lepto	25
Sponge	1	·	
Hydroid	h		
Octocoral			
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	.2		<u> </u>
other 50020a.n	1		
(ŀ		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg... Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoptexaura=Pspt Stony Coral: Genus species of each colony = G spe; A cer, A aga, C nat, M ann, M cay, P ame, O dif, S rad, S sid, S bou, S hya, S int... Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Total Must = 100%